STIC Search Report
EIC 1700

STIC Database Tracking Number: 209484

TO: John Maples Location: Remsen 6c89 Art Unit : 1745 December 6, 2006 Phone: 571-272-1287 Serial Number: 10 / 624226	From: Jan Delaval Location: EIC 1700 Remsen 4a30 Phone: 571-272-2504 jan.delaval@uspto.gov

Search Notes

Rush
FM

TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

Access DB# 209484

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: John Mapes Examiner #: 62274 Date: 12-5-06
Art Unit: 1745 Phone Number 30 2-1259 Serial Number: 10/624,226
Mail Box and Bldg/Room Location: REM-6-C09 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: HIGH CAPACITY AND HIGH RATE BATTERIES

Inventors (please provide full names): DANIA GHANTOUS; ALLISON PINDLI

Earliest Priority Filing Date: 7/22/02

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

A battery comprising an electrolyte having lithium ions and a cathode comprising metal vanadium oxide particles, the battery having an average internal electrical resistance of no more than 0.2 Ohms at a current density of at least about 30 mA/cm^2.

EX - METAL IS V

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STAFF USE ONLY

	Type of Search		Vendors and cost where applicable	
Searcher:	NA Sequence (#)		STN	✓
Searcher Phone #: 72504	AA Sequence (#)		Dialog	
Searcher Location:	Structure (#)	✓	Questel/Orbit	
Date Searcher Picked Up: 12/5/06	Bibliographic		Dr.Link	
Date Completed: 12/6/06	Litigation		Lexis/Nexis	
Searcher Prep & Review Time:	Fulltext		Sequence Systems	
Clerical Prep Time: 30	Patent Family		WWW/Internet	
Online Time: + 55	Other		Other (specify)	

PTO-1590 (8-01)

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=> d his

     (FILE 'HOME' ENTERED AT 08:47:37 ON 06 DEC 2006)
               SET COST OFF

     FILE 'REGISTRY' ENTERED AT 08:47:47 ON 06 DEC 2006
L1         53325 S (V/ELS OR 7440-62-2/CRN OR ?VANADIUM?/CNS) AND (O/ELS OR 1777
L2           637 S L1 AND 2/ELC.SUB
L3           360 S L2 NOT (CCS OR PMS OR RIS)/CI
L4             7 S L3 AND NR>=1
L5           353 S L3 NOT L4
L6            17 S L5 NOT (TIS OR AYS)/CI
L7           336 S L5 NOT L6
L8             6 S LI/MF NOT MASS

     FILE 'HCAPLUS' ENTERED AT 08:51:28 ON 06 DEC 2006
L9         29131 S L6
L10        37755 S ?VANADIUM? ?OXIDE?
L11         3531 S V2O3
L12         3137 S VANADIA
L13         1217 S L7
L14        43523 S L9-L13
L15         1571 S L8 AND L14
L16         5882 S L14 AND (LI OR ?LITHIUM?)
L17         5905 S L15,L16
               E BATTERY/CT
L18        57792 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7 OR E8+OLD,NT
               E BATTERIES/CT
L19        28202 S E3 OR E4+OLD,NT OR E14+OLD,NT
               E E3+ALL
L20        49319 S E2+OLD,NT OR E3+OLD,NT
L21         2135 S L17 AND L18
L22          540 S L17 AND L19
L23           18 S L17 AND L20
L24         2781 S L17 AND BATTERY
               E E3+ALL
               E E7+ALL
L25        21138 S E7+OLD,NT
               E BATTERIES/CT
               E E14+ALL
L26        18618 S E1
               E E2+ALL
L27        52900 S E7+OLD,NT
L28         1655 S L17 AND L25-L27
L29         2791 S L21-L24,L28
L30         1439 S L29 AND L9,L13
L31          577 S L30 AND L8
               E GHANTOUS/AU
L32            8 S E4-E6
               E PINOLI/AU
L33            7 S E4-E6
               E NANOGRAM/PA,CS
L34           42 S E3-E16
L35           52 S L32-L34
L36            6 S L35 AND L17

     FILE 'REGISTRY' ENTERED AT 09:03:54 ON 06 DEC 2006
L37          439 S L1 AND (AG/ELS OR 7440-22-4/CRN OR ?SILVER?/CNS)
L38           90 S L37 AND 3/ELC.SUB
L39            1 S L38 AND NR>=1
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L40          89 S L38 NOT L39

     FILE 'HCAPLUS' ENTERED AT 09:05:31 ON 06 DEC 2006
L41         460 S L40
L42         105 S L41 AND L8
L43         219 S L41 AND (LI OR ?LITHIUM?)
L44         219 S L42,L43
L45         169 S L44 AND BATTERY
L46         167 S L44 AND L18-L20,L25-L27
L47         169 S L45,L46
L48          34 S L47 AND  PY<=2002 NOT P/DT
L49         107 S L47 AND (PD<=20020722 OR PRD<=20020722 OR AD<=20020722) AND P
L50         141 S L48,L49
L51          86 S L50 AND L8
L52           3 S L50 AND (AM CM2 OR MAH G OR J PULSE)
L53          11 S L50 AND CURRENT()(CAPACITY OR DENSITY)
L54           3 S L50 AND C D
L55          14 S L52-L54
L56          12 S L55 NOT L36
L57          38 S L50 AND CAPACITY
L58           4 S L50 AND DENSITY
L59           2 S L58 NOT L36
L60          20 S L36,L55,L58
L61          25 S L57 NOT L60
                E DEFIBRILLATOR/CT
                E DEFIBRILLATOR
                E DEFIBRILLAT
L62        1201 S E1-E20
L63          20 S L62 AND L50
L64          26 S L62 AND L44
L65           9 S L62 AND L31
L66          32 S L36,L63,L64,L65
L67          24 S L66 AND (PD<=20020722 OR PRD<=20020722 OR AD<=20020722)
L68           5 S L66 AND PY<=2002 NOT P/DT
L69          24 S L67,L68
L70          37 S L60,L69
L71          22 S L61 NOT L70
L72          59 S L70,L71
L73          21 S L9 AND L72
L74          56 S L41 AND L72
L75          35 S L73,L74 AND L8
L76          38 S L36,L75
L77          32 S L76 NOT L36
                SEL DN 16,18,19,20,21,23,24,
L78          25 S L77 NOT E1-E7
L79          31 S L36,L78
L80          21 S L74 NOT L77-L79
L81          52 S L79,L80
L82          52 S L81 AND L9-L36,L41-L81
L83          30 S L82 AND (DEFIBRIL? OR HEART(L)DISEASE OR HEART, DISEASE+OLD,N
                E PROSTHE/CT
L84           8 S L82 AND (E62+OLD,NT OR E67+OLD,NT)
L85          30 S L83,L84
L86          22 S L82 NOT L85
L87          52 S L85,L86 AND (V2O5 OR ?VANADIUM? OR ?VANADIUM?(S)?OXIDE? OR LI
L88          49 S L87 AND (AG OR ?SILVER?)
L89          52 S L87,L88

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 09:23:58 ON 06 DEC 2006
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FILE COVERS 1907 - 6 Dec 2006 VOL 145 ISS 24
FILE LAST UPDATED: 5 Dec 2006 (20061205/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l89 bib abs hitstr retable tot

L89 ANSWER 1 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:81048 HCAPLUS
DN 140:114283
TI High **capacity** and high rate **batteries** for **implantable** medical devices
IN **Ghantous, Dania I.; Pinoli, Allison A.**
PA **Nanogram Corporation, USA**
SO PCT Int. Appl., 112 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004010520	A1	20040129	WO 2003-US22741	20030722 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2493517	AA	20040129	CA 2003-2493517	20030722 <--
	AU 2003256641	A1	20040209	AU 2003-256641	20030722 <--
	US 2004121195	A1	20040624	US 2003-624226	20030722 <--
	EP 1543572	A1	20050622	EP 2003-765837	20030722 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2005534149	T2	20051110	JP 2004-523212	20030722 <--
PRAI	US 2002-397631P	P	20020722 <--		
	WO 2003-US22741	W	20030722		

AB Improved **batteries** described herein generally comprise an

electrolyte having **lithium** ions and a cathode comprising submicron metal **vanadium oxide** particles. In some embodiments, the **battery** demonstrate an accessible **current capacity** of at least about 220 **mAh/g** when pulsed in groups of four constant energy pulses at a **c.d.** of 30 mA/cm2 to deliver 50 **J/pulse**. The four pulses of a pulse train are separated by 15 s of rest between each pulse, and there are 6 days between pulse groups, upon discharge down to a pulse discharge voltage of 2 V. In further embodiments, the **batteries** have an average internal elec. resistance of no more than 0.2 Ω at a **c.d.** of at least about 30 mA/cm2. Furthermore, the **batteries** can have a current capability of at least about 0.4 A/cm3 **battery** volume Due to the improved discharge performance, the **batteries** can exhibit no significant voltage delay throughout the life of the **battery** as demonstrated in a three month accelerated discharge test.

IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide 220356-17-2, Silver vanadium oxide** Ag0.3-2V2O4.5-6
RL: DEV (Device component use); USES (Uses)
(high **capacity** and high rate **batteries** for **implantable** medical devices)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 220356-17-2 HCAPLUS
CN Silver vanadium oxide (Ag0.3-2V2O4.5-6) (9CI) (CA INDEX NAME)

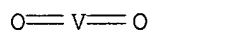
Component	Ratio	Component Registry Number
O	4.5 - 6	17778-80-2
V	2	7440-62-2
Ag	0.3 - 2	7440-22-4

IT **1314-62-1P, Vanadium oxide v2o5**, uses **12036-21-4P, Vanadium oxide** vo2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(high **capacity** and high rate **batteries** for **implantable** medical devices)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12036-21-4 HCAPLUS

CN Vanadium oxide (VO2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bi	1999			US 5925125 A	
Kambe	2000			US 6106798 A	HCAPLUS
Leising	1997			US 5695892 A	HCAPLUS
Takeuchi	1995			US 5389472 A	HCAPLUS
Takeuchi	1996			US 5498494 A	HCAPLUS

L89 ANSWER 2 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:874848 HCAPLUS
DN 139:340084
TI Application and design of a high rate **defibrillator lithium battery**
IN Gan, Hong; Takeuchi, Esther S.
PA USA
SO U.S. Pat. Appl. Publ., 16 pp., Cont.-in-part of U.S. Ser. No. 809,404.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003207168	A1	20031106	US 2003-435232	20030509 <--
	US 7056358	B2	20060606		
	US 2001044047	A1	20011122	US 2001-809404	20010315 <--
	US 6607861	B2	20030819		
PRAI	US 2000-194840P	P	20000405 <--		
	US 2001-809404	A2	20010315 <--		

AB A method for powering an **implantable** medical device with a **lithium** electrochem. cell having a sandwich cathode of SVO (**silver vanadium oxide**)/CFx/SVO active materials is disclosed. A preferred cathode is of a γ-SVO/CFx/SVO or (γ+ε)-SVO/CFx/(γ+ε)-SVO sandwich configuration.
IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide 12026-36-7, Silver vanadium oxide** AgV2O5.5 **346712-58-1, Silver vanadium oxide** Ag0.8V2O5.4 **364605-96-9, Silver vanadium oxide** Ag1.82V4O10.91 **364621-24-9, Silver vanadium oxide** Ag0.8-1V2O5.4-5.5
RL: DEV (Device component use); USES (Uses)
(application and design of high rate **defibrillator lithium battery**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

RN 11105-02-5 HCAPLUS

CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 346712-58-1 HCAPLUS
CN Silver vanadium oxide (Ag0.8V2O5.4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.4	17778-80-2
V	2	7440-62-2
Ag	0.8	7440-22-4

RN 364605-96-9 HCAPLUS
CN Silver vanadium oxide (Ag1.82V4O10.91) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	10.91	17778-80-2
V	4	7440-62-2
Ag	1.82	7440-22-4

RN 364621-24-9 HCAPLUS
CN Silver vanadium oxide (Ag1.6-2V4O10.8-11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	10.8 - 11	17778-80-2
V	4	7440-62-2
Ag	1.6 - 2	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1991			EP 0478303 A2	HCAPLUS
Anon	1993			EP 0532313 A1	HCAPLUS
Anon	1993			EP 0618630 A1	HCAPLUS
Anon	1995			EP 0689256 A1	HCAPLUS
Anon	1998			EP 0849225 A1	HCAPLUS
Bai	1998			US 5744258 A	HCAPLUS
Crespi	1993			US 5221453 A	HCAPLUS

Crespi	1999			US 5895733 A	HCAPLUS
Crespi	1999			US 5955218 A	HCAPLUS
Keister	1989			US 4830940 A	HCAPLUS
Leising	1997			US 5695892 A	HCAPLUS
Leising, R				Solid-State Cathode	
Leising, R				Solid-State Synthesi	
Liang	1982			US 4310609 A	HCAPLUS
Liang	1983			US 4391729 A	HCAPLUS
Smesko	1999			US 5902696 A	HCAPLUS
Sunderland	1998			US 5811206 A	
Takeuchi	1995			US 5389472 A	HCAPLUS
Takeuchi	1995			US 5472810 A	HCAPLUS
Takeuchi	1996			US 5498494 A	HCAPLUS
Takeuchi	1996			US 5545497 A	HCAPLUS
Takeuchi	1996			US 5558680 A	HCAPLUS
Takeuchi	1997			US 5670276 A	HCAPLUS
Takeuchi, E				Abstract No. 125	
Takeuchi, E	1987	21	133	Journal of Power Sou	HCAPLUS

L89 ANSWER 3 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:675616 HCAPLUS
DN 139:199962
TI Organic cyclic carbonate additives for nonaqueous electrolyte in alkali metal electrochemical cells
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Technologies, Inc., USA
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1339121	A2	20030827	EP 2003-251016	20030219 <--
	EP 1339121	A3	20050518		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	CA 2419212	AA	20030820	CA 2003-2419212	20030219 <--
	US 2003162098	A1	20030828	US 2003-368658	20030219 <--
	US 7033707	B2	20060425		
	JP 2004039625	A2	20040205	JP 2003-89323	20030219 <--
PRAI	US 2002-358199P	P	20020220 <--		

OS MARPAT 139:199962
AB A **lithium** electrochem. cell of either a primary or a secondary chemical activated with an electrolyte having a cyclic carbonate of a ring size equal to or larger than a six-member ring is disclosed. The cyclic carbonate helps to make the anode passivation film ionically conductive to thereby eliminate voltage delay during pulse discharge and to reduce Rdc. Such a cell is particularly well suited for powering an **implantable** medical device, such as a cardiac **defibrillator.**
IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(organic cyclic carbonate additives for nonaq. electrolyte in alkali metal electrochem. cells)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 4 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:570507 HCAPLUS
DN 139:103814
TI Cathode active material coated with a metal oxide for incorporation into a **lithium battery** for an **implantable** cardiac **defibrillator**
IN Leising, Randolph; Takeuchi, Esther S.
PA USA
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003138697	A1	20030724	US 2003-350384	20030123 <--
	CA 2417080	AA	20030724	CA 2003-2417080	20030124 <--
	EP 1331683	A2	20030730	EP 2003-1616	20030124 <--
	EP 1331683	A3	20050810		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004039620	A2	20040205	JP 2003-54923	20030124 <--
PRAI	US 2002-351947P	P	20020124 <--		
	US 2003-350384	A	20030123		

AB An improved cathode material for nonaq. electrolyte **lithium** electrochem. cell is disclosed. The preferred active material is **silver vanadium oxide** (SVO) coated with a protective layer of an inert metal **oxide** (MxOy) or lithiated metal **oxide** (LixMyOz). The SVO core provides high **capacity** and rate capability while the protective coating reduces reactivity of the active particles with electrolyte to improve the long-term stability of the cathode.
IT **1314-62-1, Vanadia**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(cathode active material coated with metal **oxide** for incorporation into **lithium battery** for **implantable** cardiac **defibrillator**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 5 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:551056 HCAPLUS
DN 139:87888
TI Sandwich electrode design having relatively thin current collectors for **lithium batteries**
IN Roy, Mark J.; Gan, Hong; Hallifax, Paul T.
PA USA
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003134188	A1	20030717	US 2003-346998	20030117 <--
PRAI US 2002-349678P	P	20020117 <--		

AB A new cathode design has a first cathode active material of a relatively low energy d. but of a relatively high rate capability contacted to the outer sides of first and second cathode current collectors and a second cathode active material having a relatively high energy d. but of a relatively low rate capability in contact with the inner sides of the current collectors. The first and second current collectors have a thickness in the range of from about 0.001 in. to about 0.002 in. A conventional **Li**/SVO cell powering an **implantable** medical device has the cathode with a current collector of about 0.003 in. Even though the present current collectors are about one-half as thick as that of a conventional cell, their combined thickness means that the cell has no reduction in current carrying **capacity**.
IT **1314-62-1, Vanadium oxide (V2O5)**, uses **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(sandwich electrode design having relatively thin current collectors for **lithium batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2

Ag | x | 7440-22-4

L89 ANSWER 6 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:529417 HCAPLUS
DN 139:87832
TI Dual chemistry electrode design for **lithium battery** for cardiac **defibrillator**
IN Guidi, Michael L.; Gan, Hong; Roy, Mark J.; Clare, Susan L.
PA Wilson Greatbatch Technologies, Inc., USA
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1326295	A2	20030709	EP 2003-15	20030102 <--
EP 1326295	A3	20050824		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CA 2415881	AA	20030702	CA 2003-2415881	20030102 <--
US 2003129485	A1	20030710	US 2003-336455	20030102 <--
US 7018743	B2	20060328		
JP 2004039616	A2	20040205	JP 2003-34379	20030106 <--
PRAI US 2002-345724P	P	20020102 <--		

AB A new cathode design has a first cathode active material of a relatively low energy d. but of a relatively high rate capability contacted to the outer sides of first and second cathode current collectors and a second cathode active material having a relatively high energy d. but of a relatively low rate capability in contact with the inner sides of the current collectors. The second cathode active material has a greater peripheral extend than the current collectors and the opposed layers of the first cathode active material between which it is sandwiched. This construction helps prevent delamination by promoting improved contact of the resp. active materials to the current collectors. The present cathode design is useful for powering an **implantable** medical device requiring a high rate discharge application.
IT **1314-62-1, Vanadium oxide (V2O5)**, uses **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(dual chemical electrode design for **lithium battery** for cardiac **defibrillator**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 7 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:435143 HCAPLUS
DN 138:404398
TI Method for electrode design for **implantable** device applications that require the elective replacement indicator (ERI)
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Technologies, Inc., USA
SO U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003104269	A1	20030605	US 2002-290858	20021108 <--
	US 6936379	B2	20050830		
	JP 2004033723	A2	20040205	JP 2002-364439	20021111 <--
PRAI	US 2001-345031P	P	20011109 <--		

AB A method for providing a physician with an elective replacement indicator (ERI) for an **implantable** medical device is disclosed. The medical device is powered by an electrochem. having a **lithium** anode coupled to a sandwich cathode comprising the configuration: SVO/current collector/CFx, with the SVO facing the anode. The indicator is predicated on when the cell's discharge **capacity** is nearing end-of-life based on the theor. **capacity** and the discharge efficiency of the SVO and CFx active materials. This serves as an indicator when it is time to replace the medical device.
IT **1314-62-1**, **Vanadia**, uses **7439-93-2**, **Lithium**, uses **11105-02-5**, **Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(method for electrode design for **implantable** device applications that require elective replacement indicator)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	2001			EP 1150366 A2	HCAPLUS
Anon	2002			EP 1150366 A3	HCAPLUS
Shelton	1994			US 5370668 A	
Smesko	1996			US 5569553 A	

L89 ANSWER 8 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:818611 HCAPLUS
DN 138:207699
TI Composite **Li**-ion **battery** anodes produced by partial reduction of mixed oxides
AU Limthongkul, Pimpa; Wang, Haifeng; Chiang, Yet-Ming
CS Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA
SO Proceedings - Electrochemical Society (**2001**), 2000-21(Rechargeable Lithium Batteries), 240-249
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB A new method based on the partial reduction of mixed oxides is demonstrated for creating ultrafine metal-ceramic composites for **Li** storage. Mixed oxides, containing a more noble metal capable of alloying with **Li** at a potential useful as a **Li**-ion **battery** anode, are partially reduced to form an electrochem. active metal-ceramic composite. Exptl. results are presented for systems with slow oxygen diffusion (SbVO4, AgVO3 and Ag2V4O11), fast oxygen diffusion (Sb2Mn2O7 pyrochlore), and microphase separation (Sn0.5Ti0.5O2 rutile). Materials were characterized by x-ray diffraction, SEM, TEM, and electrochem. tests. Measurements indicated reversible charge **capacities** of 200-350 mA-h/g (1100-2200 mA-h/cm3) and first-cycle losses of <20%.
IT **12026-36-7D, Silver vanadium oxide** (Ag2V4O11), partially reduced **13497-94-4D, Silver vanadium oxide** (AgVO3), partially reduced
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metal-ceramic composite anodes produced by partial reduction of mixed **oxides** for **lithium**-ion **batteries**)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 13497-94-4 HCAPLUS
CN Silver vanadium oxide (AgVO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
V	1	7440-62-2
Ag	1	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Baumard, J	1977	67	857	J Chem Phys	HCAPLUS
Courtney, I	1997	144	2045	J Electrochem Soc	HCAPLUS
Courtney, I	1997	144	2942	J Electrochem Soc	
Ehrlich, G	2000	147	886	J Electrochem Soc	HCAPLUS
Fauteux, D	1993	23	1	J Appl Electrochem	HCAPLUS
Hansen, P	1958			Constitution of bina	
Huggins, R	1989	26	109	J Power Sources	HCAPLUS
Idota, Y	1997	276	1395	Science	HCAPLUS
Mao, O	1999	2	3	Electrochem Solid St	HCAPLUS
Maruyama, H	1991	24		Ceramic Transaction	HCAPLUS
Megahed, S	1994	51	79	J Power Sources	HCAPLUS
Narayan, J	1984	A49	475	Phil Mag	
Ostyn, K	1984	67	679	J Am Cer Soc	HCAPLUS
Ricoult, D	1987	22	2257	J Mater Sci	HCAPLUS
Roth, R	1981	4		Phase Diagrams for C	
Schmalzried, H	1993	22	1	Prog Solid St Chem	
Smith, J	1998	83	2719	J Appl Phys	HCAPLUS
Subramanian, R	1995	A195	51	Mat Sci Eng	HCAPLUS
uestuendag, E	1995	43	383	Acta Metall Mater	HCAPLUS
Vincent, C	1997		121	Modern Batteries	
Wang, J	1986	133	457	J Electrochem Soc	HCAPLUS
Yang, J	1996	90	281	Solid State Ionics	HCAPLUS
Yuan, T	1988	71	12	J Am Ceram Soc	HCAPLUS

L89 ANSWER 9 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:604601 HCAPLUS
DN 138:26787
TI Metal Oxide Composites for **Lithium**-Ion **Battery** Anodes Synthesized by the Partial Reduction Process
AU Limthongkul, Pimpa; Wang, Haifeng; Jud, Eva; Chiang, Yet-Ming
CS Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA
SO Journal of the Electrochemical Society (**2002**), 149(9), A1237-A1245
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
AB A thermochem. process based on the partial reduction of mixed oxides is used to create ultrafine metal-ceramic composites for **Li**-ion **battery** electrodes. Mixed oxides containing a more noble metal selected to be capable of alloying with **Li** at potentials useful as a **Li**-ion **battery** anode are partially reduced to form electrochem. active metal-ceramic composites. Expts. show the differences in microstructure obtained in systems with slow oxygen diffusion (SbVO4, AgVO3, and Ag2V4O11), fast oxygen diffusion (Sb2Mn2O7 distorted fluorite), and microphase separation (Sn0.5Ti0.5O2 rutile). Materials are characterized using x-ray diffraction, SEM, TEM, and scanning TEM; electrochem. tests are also presented. Reversible charge **capacities** of 200-350 mA-h/g (1100-2200 mA-h/cm3) were obtained.
IT **12026-36-7D, Silver vanadium oxide** (Ag2V4O11), partially-reduced **13497-94-4D, Silver vanadium oxide** (AgVO3), partially-reduced
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material

use); PROC (Process); USES (Uses)
(metal **oxide** composites for **lithium**-ion **battery** anodes synthesized by partial reduction)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 13497-94-4 HCAPLUS
CN Silver vanadium oxide (AgVO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
V	1	7440-62-2
Ag	1	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Baumard, J	1977	67	857	J Chem Phys	HCAPLUS
Besenhard, J	1997	87	68	J Power Sources	
Centi, G	1997	149	225	Appl Catal, A	HCAPLUS
Courtney, I	1997	144	2045	J Electrochem Soc	HCAPLUS
Courtney, I	1997	144	2942	J Electrochem Soc	
Ehrlich, G	2000	147	886	J Electrochem Soc	HCAPLUS
Fauteux, D	1993	23	1	J Appl Electrochem	HCAPLUS
Hansen, P	1958			Constitution of Bina	
Huggins, R	2000	5	57	Ionics	
Huggins, R	1989	26	109	J Power Sources	HCAPLUS
Idota, Y	1997	276	1395	Science	HCAPLUS
Ikeda, J	1993	76	2437	J Am Ceram Soc	HCAPLUS
Limthongkul, P	2001	13	2397	Chem Mater	HCAPLUS
Limthongkul, P	2001			Paper 255 presented	
Limthongkul, P	2002			PhD Thesis, MIT	
Mao, O	1999	2	3	Electrochem Solid-St	HCAPLUS
Maruyama, H	1991	24	367	Ceramic Transactions	HCAPLUS
Narayan, J	1984	49	475	Philos Mag A	HCAPLUS
Ostyn, K	1984	67	679	J Am Ceram Soc	HCAPLUS
Ricoult, D	1987	22	2257	J Mater Sci	HCAPLUS
Roth, R	1981	4		Phase Diagrams for C	
Schmalzried, H	1993	22	1	Prog Solid State Che	
Scott, H	1987	66	171	J Solid State Chem	HCAPLUS
Smith, J	1998	83	2719	J Appl Phys	HCAPLUS
Subramanian, R	1995	195	51	Mater Sci Eng, A	
Ustundag, E	1995	43	383	Acta Metall Mater	
Vincent, C	1997		121	Modern Batteries	
Wang, J	1986	133	457	J Electrochem Soc	HCAPLUS
Yang, J	2000	146	4009	J Electrochem Soc	
Yang, J	1996	90	281	Solid State Ionics	HCAPLUS
Yuan, T	1988	71	12	J Am Ceram Soc	HCAPLUS

L89 ANSWER 10 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:457887 HCAPLUS
DN 137:172334
TI Fabrication and Characterization of **Silver-V2O5** Composite Thin Films as **Lithium**-Ion Insertion Materials
AU Chu, Yan-Qiu; Qin, Qi-Zong
CS Chemistry Department, Laser Chemistry Institute, Fudan University, Shanghai, 200433, Peop. Rep. China
SO Chemistry of Materials (**2002**), 14(7), 3152-3157
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English
AB **Silver-vanadium pentoxide** composite films have been fabricated by 355-nm pulsed laser reactive deposition on stainless steel substrates. X-ray diffraction and SEM analyses showed that the composite films AgxV2O5 (x = 0.1-0.5) deposited at a substrate temperature of 300° in the presence of ambient 100 mtorr O2 for 0.5 h were amorphous and became a polycryst. structure after 2 h of deposition. The valence states of **Ag** and V for AgxV2O5 composite film were examined by XPS measurement. The amorphous Ag0.5 **V2O5** composite film electrode exhibited a sp. **capacity** as high as 396 mA-h/g in the range of 4.0-1.0 V at a 2C rate and remained at a **capacity** of 260 mA-h/g at a high rate of 20C with no obvious fading upon cycling >1000 cycles. In addition, the electronic conductivities of AgxV2O5 composite films were 2-3 orders of magnitude higher than that of pure **V2O5** film. The dramatically improved rate and cycling performance might be related to the changes in microstructure of the AgxV2O5 composite films.
IT **127672-83-7, Silver vanadium oxide** (Ag0.5V2O5) **131314-85-7, Silver vanadium oxide** (Ag0.3V2O5) **198831-05-9, Silver vanadium oxide** (Ag0.1V2O5)
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(fabrication and characterization of **silver vanadium oxide** composite films used as cathode insertion material for **lithium**-ion **batteries**)
RN 127672-83-7 HCAPLUS
CN Silver vanadium oxide (Ag0.5V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.5	7440-22-4

RN 131314-85-7 HCAPLUS
CN Silver vanadium oxide (Ag0.3V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.3	7440-22-4

RN 198831-05-9 HCAPLUS
CN Silver vanadium oxide (Ag0.1V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.1	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bystrom, A	1950	4	1119	Acta Chem Scand	HCAPLUS
Coustier, F	1999	146	1355	J Electrochem Soc	HCAPLUS
Dong, W	2000	3	457	Electrochem Solid-St	HCAPLUS
Fu, Z	1999	146	3914	J Electrochem Soc	HCAPLUS
Fu, Z	2000	147	2371	J Electrochem Soc	HCAPLUS
Fu, Z	2000	147	4610	J Electrochem Soc	HCAPLUS
Fu, Z	2000	104	5505	J Phys Chem B	HCAPLUS
Julien, C	1995	90	389	Appl Surf Sci	HCAPLUS
Julien, J	1999	B65	170	J Mater Sci Eng	
Khan, G	1991	26	1087	J Mater Sci	HCAPLUS
Krishma, M	1998	312	116	Thin Solid Film	
Park, H	1995	142	1068	J Electrochem Soc	HCAPLUS
Passerini, S	1999	44	2209	Electrochim Acta	HCAPLUS
Ramana, C	1998	B52	32	Mater Sci Eng	HCAPLUS
Sakamato, J	2002	149	A26	J Electrochem Soc	
Shimizu, Y	1990	29	L1708	Jpn J Appl Phys	HCAPLUS
Takeuchi, J	2001	219-2	283	Coord Chem Rev	
Tipon, A	1996	143	3473	J Electrochem Soc	
Vivier, V	1998	44	831	Electrochim Acta	HCAPLUS
Watanabe, H	2001	386	281	Thin Solid Film	HCAPLUS
Winter, M	1998	10	725	Adv Mater	HCAPLUS
Zhang, J	1997	144	1630	J Electrochem Soc	HCAPLUS

L89 ANSWER 11 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:391427 HCAPLUS
DN 136:372303
TI Double current collector anode design for alkali metal ion electrochemical cells
IN Gan, Hong; Rubino, Robert S.; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1207571	A2	20020522	EP 2001-127533	20011118 <--
	EP 1207571	A3	20050824		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2002061446	A1	20020523	US 2001-8977	20011108 <--
	US 6737191	B2	20040518		
	JP 2002198061	A2	20020712	JP 2001-349778	20011115 <--
	CA 2363162	AA	20020517	CA 2001-2363162	20011116 <--
	JP 2002198035	A2	20020712	JP 2001-351632	20011116 <--
	JP 2002203607	A2	20020719	JP 2001-351633	20011116 <--
	JP 2002237334	A2	20020823	JP 2001-390626	20011116 <--
	JP 2002270162	A2	20020920	JP 2001-390625	20011116 <--

JP 2002237310 A2 20020823 JP 2001-395430 20011119 <--
PRAI US 2000-249688P P 20001117 <--
US 2001-8977 A 20011108 <--
AB A new sandwich neg. electrode design for a secondary cell is provided comprising a "sacrificial" alkali metal along with a carbonaceous anode material. In the case of a hard carbon anode material, the sacrificial alkali metal is preferably **lithium** and is sized to compensate for the initial irreversible **capacity** of this anode material. Upon activating the cells, the **lithium** metal automatically intercalates into the hard carbon anode material. That way, the sacrificial **lithium** is consumed and compensates for the generally unacceptable irreversible **capacity** of hard carbon. The superior cycling longevity of hard carbon now provides a secondary cell of extended use beyond that known for conventional secondary cells having only graphitic anode materials.
IT **1314-62-1, Vanadium pentoxide**, uses
7439-93-2, Lithium, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(double current collector anode design for alkali metal ion electrochem. cells)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 12 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:391424 HCAPLUS
DN 136:372300
TI Sandwich cathode design using mixtures of two active materials for alkali metal or ion **batteries**
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 6

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1207568	A2	20020522	EP 2001-127527	20011117 <--
EP 1207568	A3	20050810		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,

IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

	US 2002090548	A1	20020711	US 2001-8823	20011024 <--
	US 6692865	B2	20040217		
	JP 2002198061	A2	20020712	JP 2001-349778	20011115 <--
	CA 2363282	AA	20020517	CA 2001-2363282	20011116 <--
	JP 2002198035	A2	20020712	JP 2001-351632	20011116 <--
	JP 2002203607	A2	20020719	JP 2001-351633	20011116 <--
	JP 2002237334	A2	20020823	JP 2001-390626	20011116 <--
	JP 2002270162	A2	20020920	JP 2001-390625	20011116 <--
	JP 2002237310	A2	20020823	JP 2001-395430	20011119 <--
PRAI	US 2000-249688P	P	20001117 <--		
	US 2001-8823	A	20011024 <--		

AB A new sandwich cathode design is provided having a first cathode structure of a first cathode active material of a relatively low energy d. but of a relatively high rate **capacity**, e.g. **silver vanadium oxide** (SVO), mixed with a second cathode active material having a relatively high energy d. but a relatively low rate capability, e.g. CFx, with the percentage of SVO being less than that of CFx and sandwiched between 2 current collectors. Then, a second cathode mixture of SVO and CFx active materials is contacted to the outside of the current collectors. However, the percentage of SVO to CFx is greater in the second structure than in the first. Such an exemplary cathode design is (100-y)% SVO +y% CFx, wherein 0≤y≤100/current collector/(100-x)% SVO + x% CFx, wherein 0≤x≤100/current collector//(100-y)% SVO + y% CFx, wherein 0≤y≤100, and wherein the ratio of x to y is selected from the group consisting of y<x, x<y and x=y.

IT **1314-62-1**, **Vanadium oxide (V2O5)**, uses **7439-93-2**, **Lithium**, uses **11105-02-5**, **Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(sandwich cathode design using mixts. of two active materials for alkali metal or ion **batteries**)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 13 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:391423 HCAPLUS
DN 136:372299
TI Sandwich cathode design for alkali metal electrochemical cells having circuit safety characteristics

IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1207567	A2	20020522	EP 2001-127228	20011116 <--
	EP 1207567	A3	20050810		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2002090551	A1	20020711	US 2001-969389	20011002 <--
	US 6692871	B2	20040217		
	CA 2361030	AA	20020517	CA 2001-2361030	20011105 <--
	JP 2002198061	A2	20020712	JP 2001-349778	20011115 <--
	JP 2002198035	A2	20020712	JP 2001-351632	20011116 <--
	JP 2002203607	A2	20020719	JP 2001-351633	20011116 <--
	JP 2002237334	A2	20020823	JP 2001-390626	20011116 <--
	JP 2002270162	A2	20020920	JP 2001-390625	20011116 <--
	JP 2002237310	A2	20020823	JP 2001-395430	20011119 <--
PRAI	US 2000-249688P	P	20001117 <--		
	US 2001-969389	A	20011002 <--		

AB A new sandwich cathode design has a first cathode active material of a relatively low energy d. but of a relatively high rate **capacity** sandwiched between 2 current collectors and with a second cathode active material having a relatively high energy d. but of a relatively low rate capability in contact with the opposite sides of the 2 current collectors. The cathode design is relatively safer under short circuit and abuse conditions than the cells having a cathode material of a relatively high energy d. but a relatively low rate capability alone. A preferred cathode is: CFx/current collector/SVO/current collector/CFx. The SVO provides the discharge end of life indication since CFx and SVO cathode cells discharge under different voltage profiles. This is useful as an end-of-replacement indicator for an **implantable** medical device, such as cardiac pacemaker.

IT **1314-62-1, Vanadium oxide (V2O5)**,
uses **7439-93-2, Lithium**, uses **11105-02-5**,
Silver vanadium oxide
RL: DEV (Device component use); USES (Uses)
(sandwich cathode design for alkali metal electrochem. cells having circuit safety characteristics)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 14 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:282397 HCAPLUS
DN 137:203875
TI The electrochemical properties on the **silver** doped **vanadium oxide** xerogel
AU Park, Heai-Ku; Kim, Gun-Tae; Lee, Man-Ho
CS Faculty of Engineering, Keimyung University, S. Korea
SO Journal of the Korean Electrochemical Society (**2002**), 5(1), 1-6
CODEN: JKESFC; ISSN: 1229-1935
PB Korean Electrochemical Society
DT Journal
LA Korean
AB **Silver**-doped **vanadium pentoxides** (at **Ag**-V doping ratio 0.03-0.11:1) were synthesized by the sol-gel process, and **Li**/AgxV2O5 cell (x = 0.06, 0.11, and 0.22) was investigated electrochem. It appeared to be an amorphous layered material, in which entangled fibrous textures were grown to form anisotropic corrugated fibrils. NMR measurements revealed that several different kinds of **Li**+ ions existed in the **lithium** intercalated xerogel electrodes. The average cell potential was about 3.0 V vs. **Li**/**Li**+. The cell **capacity** of the **silver** doped AgxV2O5 xerogel cathodes was >359 **mAh**/**g** at discharge current 10 mA/g, and a cycle efficiency 94% was achieved.
IT **131500-86-2P, Silver vanadium oxide** (Ag0.06V2O5) **453538-34-6P, Silver vanadium oxide** (Ag0.11V2O5) **453538-35-7P, Silver vanadium oxide** (Ag0.22V2O5)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cathodes; electrochem. properties of **silver**-doped **vanadium pentoxide** xerogel as cathodes for **lithium** secondary **batteries**)
RN 131500-86-2 HCAPLUS
CN Silver vanadium oxide (Ag0.6V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.6	7440-22-4

RN 453538-34-6 HCAPLUS
CN Silver vanadium oxide (Ag0.11V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.11	7440-22-4

RN 453538-35-7 HCAPLUS
CN Silver vanadium oxide (Ag0.22V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.22	7440-22-4

IT **1314-62-1P, Vanadium pentoxide,** uses
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**silver**-doped, cathodes; electrochem. properties of **silver**-doped **vanadium pentoxide** xerogel as cathodes for **lithium** secondary **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L89 ANSWER 15 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:172314 HCAPLUS
DN 136:219532
TI High rate **batteries** with metal **vanadium oxides** for **implantable** medical devices
IN **Ghantous, Dania I.**; Chaloner-Gill, Benjamin; Chiruvolu, Shivkumar; Banfol, Devendra R.; McGovern, William E.; Cornell, Ronald M.; Hoang, Khanh; **Pinoli, Allison A.**
PA **Nanogram Corporation, USA**
SO PCT Int. Appl., 107 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 30

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002019448	A1	20020307	WO 2001-US41902	20010828 <--
	W: CN, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	US 6503646	B1	20030107	US 2000-649752	20000828 <--
	EP 1338043	A1	20030827	EP 2001-964649	20010828 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2004508669	T2	20040318	JP 2002-524243	20010828 <--
	CN 1531480	A	20040922	CN 2001-820305	20011026 <--
	US 2003077513	A1	20030424	US 2002-303622	20021125 <--
PRAI	US 2000-649752	A	20000828 <--		
	US 2000-243491P	P	20001026 <--		
	WO 2001-US41902	W	20010828 <--		

AB Improved high rate **batteries** based on **silver vanadium oxide** yield improved pulsed performance. In particular, **batteries** comprise an electrolyte having **lithium** ions and a cathode comprising **silver vanadium oxide.** Improved **batteries** have a pulsed specific energy of at least about 575 mW-h/g when pulsed in groups of four-10 s pulses at a **c.d.** of 25 mA/cm2 spaced by 15 s between pulses and with 30 min between pulse groups down to a discharge voltage of 1.5 V. In addition, improved **batteries** can achieve high maximum specific powers, high **current densities** and no voltage delay in pulsed operation. The

batteries are particularly suitable for use in **implantable** medical devices, such as, **defibrillators**, pacemakers or combinations thereof. Improved processing approaches are described.

IT **1314-62-1, Vanadium pentoxide**, processes
12036-21-4, Vanadium oxide vo2
12037-42-2, Vanadium oxide v6o13
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(high rate **batteries** with metal **vanadium oxides** for **implantable** medical devices)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12036-21-4 HCAPLUS
CN Vanadium oxide (VO2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=V=O

RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide 12026-36-7, Silver vanadium oxide** Ag2V4O11
RL: DEV (Device component use); USES (Uses)
(high rate **batteries** with metal **vanadium oxides** for **implantable** medical devices)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2

V	4	7440-62-2
Ag	2	7440-22-4

IT **13497-94-4, Silver** metavanadate
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(high rate **batteries** with metal **vanadium oxides** for **implantable** medical devices)
RN 13497-94-4 HCAPLUS
CN Silver vanadium oxide (AgVO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
V	1	7440-62-2
Ag	1	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Crespi	1993			US 5221453 A	HCAPLUS
Crespi	1998			US 5766797 A	HCAPLUS
Takeuchi	1995			US 5389472 A	HCAPLUS
Takeuchi	1996			US 5498494 A	HCAPLUS

L89 ANSWER 16 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:935955 HCAPLUS
DN 136:56443
TI Electrodes and **batteries** formed from **lithium** metal oxide nanoparticles
IN Kumar, Sujeet; Horne, Craig R.
PA **Nanogram Corporation, USA**
SO PCT Int. Appl., 102 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 30

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001099215	A1	20011227	WO 2001-US40979	20010614 <--
	W: CA, CN, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	US 6749648	B1	20040615	US 2000-595958	20000619 <--
	CA 2412601	AA	20011227	CA 2001-2412601	20010614 <--
	EP 1301954	A1	20030416	EP 2001-952866	20010614 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003536231	T2	20031202	JP 2002-503963	20010614 <--
	CN 1531480	A	20040922	CN 2001-820305	20011026 <--
	US 2004197659	A1	20041007	US 2004-827072	20040419 <--
PRAI	US 2000-595958	A	20000619	<--	
	US 2000-243491P	P	20001026	<--	
	WO 2001-US40979	W	20010614	<--	

AB **Lithium** metal oxide particles have been produced having average diams. less than about 100 nm. Composite metal oxides of particular interest include, for example, **lithium** cobalt oxide, **lithium** nickel oxide, **lithium** titanium oxides and

derivs. thereof. These nanoparticles composite metal oxides can be used as electroactive particles in **lithium** or **lithium** ion **batteries**. **Batteries** of particular interest include **lithium** titanium oxide in the neg. electrode and **lithium** cobalt manganese oxide in the pos. electrode.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Idota	1999			US 5965293 A	HCAPLUS
Kawakami	2000			US 6165642 A	HCAPLUS
Manthiram	2001			US 6268085 B	HCAPLUS
Oak Ridge National Labo	1999			Thin Film Rechargeab	
Yamamoto	2000			US 6127065 A	HCAPLUS

L89 ANSWER 17 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:850850 HCAPLUS
DN 135:360258
TI Control of **battery** swelling by the proper choice of carbon monofluoride cathode materials in high rate **defibrillator** cells
IN Gan, Hong; Smesko, Sally Ann; Takeuchi, Esther S.; Davis, Steven M.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1156541	A2	20011121	EP 2001-112257	20010518 <--
	EP 1156541	A3	20030326		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2002012844	A1	20020131	US 2001-859558	20010517 <--
	US 6783888	B2	20040831		
	JP 2002100361	A2	20020405	JP 2001-188868	20010517 <--
	CA 2348175	AA	20011118	CA 2001-2348175	20010518 <--
	CA 2348175	C	20060131		
PRAI	US 2000-205361P	P	20000518 <--		

AB The minimization or elimination of swelling in **lithium** cells containing CFx as part of the cathode and discharged under high rate applications is disclosed. When CFx materials are synthesized from fibrous carbonaceous materials, in comparison to petroleum coke, cell swelling is greatly reduced, and in some cases eliminated. Preferred precursors are carbon fibers and MCMB.

IT **1314-62-1**, **Vanadium pentoxide**, uses
7439-93-2, **Lithium**, uses **11105-02-5**, **Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(control of **battery** swelling by proper choice of carbon monofluoride cathode materials in high rate **defibrillator** cells)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 18 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:817214 HCAPLUS
DN 135:346942
TI Electrochemical cell having multiplate electrodes with differing discharge rate regions
IN Spillman, David M.; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S. Pat. Appl. Publ., 10 pp., Cont.-in-part of Ser. No. US 1999-247347, filed on 10 Feb 1999, now
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001038943	A1	20011108	US 2001-848457	20010503 <--
	US 6677077	B2	20040113		
	US 5935724	A	19990810	US 1997-832803	19970404 <--
	US 2005054683	A1	20050310	US 2003-470575	20030322 <--
PRAI	US 1997-832803	A3	19970404	<--	
	US 1999-247347	A2	19990210	<--	
	US 1995-3149P	P	19950901	<--	
	US 1996-696313	A3	19960813	<--	
	US 2000-518701	B1	20000303	<--	

AB An electrochem. cell comprises a medium rate electrode region intended to be discharged under a substantially constant drain and a high rate electrode region intended to be pulse discharged. Both electrode regions share a common anode and are activated with the same electrolyte.
IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(electrochem. cell having multiplate electrodes with differing discharge rate regions)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anani	1995			US 5439756 A	HCAPLUS
Anani	2000			US 6117585 A	HCAPLUS
Anon	1926			GB 254853	
Beatty	1976			US 3982966 A	HCAPLUS
Beldock	1992			US 5169732 A	
Beldock	1993			US 5183712 A	HCAPLUS
Berkowitz	1995			US 5434017 A	
Bubnick	1979			US 4154906 A	HCAPLUS
Crespi	1995			US 5458997 A	HCAPLUS
DiPasquale	1959			US 2905738 A	
Goebel	1984			US 4447504 A	HCAPLUS
Hite	1912			US 1024577 A	HCAPLUS
Hoge	1995			US 5447806 A	HCAPLUS
Keister	1989			US 4830940 A	HCAPLUS
Lundsgnard	1989			US 4879190 A	HCAPLUS
Muffoletto	1997			US 5624767 A	HCAPLUS
Nagaura	1996			US 5534369 A	HCAPLUS
Rao	1975			US 3861397 A	HCAPLUS
Renirie	1977			US 4031899 A	
Robinson	1968			US 3393097 A	HCAPLUS
Smesko	1996			US 5569553 A	
Spillman	2000			US 6165638 A	HCAPLUS
Szasz	1992			US 5164273 A	HCAPLUS
Takeuchi	1997			US 5614331 A	HCAPLUS
Takeuchi	1997			US 5667910 A	HCAPLUS
Thomas	1997			US 5670266 A	HCAPLUS

L89 ANSWER 19 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:747278 HCAPLUS
DN 135:291388
TI Improved **silver vanadium oxide** cathode material for high discharge rate **lithium batteries**
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Limited, USA
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1143545	A1	20011010	EP 2001-303235	20010405 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2003082449	A1	20030501	US 2001-793246	20010226 <--
	US 6623887	B2	20030923		
	JP 2001297769	A2	20011026	JP 2001-108960	20010406 <--
PRAI	US 2000-195006P	P	20000406 <--		
	US 2001-793246	A	20010226 <--		

AB A method for synthesizing a mixture of ε-SVO and γ-SVO by a two step raw materials mixing process, is disclosed. The γ-SVO is the preferred SVO in terms of electrochem. performance, such as reduced

Rdc growth and reduced or eliminated voltage delay. On the other hand, ε-SVO has slightly higher volumetric **capacity** than γ-SVO. AgVO3 is an undesirable component in **Li**/SVO cell cathodes because it causes increased Rdc growth and larger voltage delay in comparison to the pure product materials. According to the present invention, a mixture of ε-SVO (0-100%) + γ-SVO (100-0%) as a cathode active material in **lithium** cells is preferred.

IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide 12026-36-7, Silver vanadium oxide** Ag2V4O11 **346712-58-1, Silver vanadium oxide** (Ag0.8V2O5.4) **364621-28-3, Silver vanadium oxide** (Ag0.7V4O5.35)
RL: DEV (Device component use); USES (Uses)
(improved **silver vanadium oxide** cathode material for high discharge rate **lithium batteries**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 346712-58-1 HCAPLUS
CN Silver vanadium oxide (Ag0.8V2O5.4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.4	17778-80-2
V	2	7440-62-2
Ag	0.8	7440-22-4

RN 364621-28-3 HCAPLUS
CN Silver vanadium oxide (Ag0.7V4O5.35) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.35	17778-80-2

V	4	7440-62-2
Ag	0.7	7440-22-4

IT **364605-96-9P, Silver vanadium oxide** (Ag1.82V4O10.91) **364621-24-9P, Silver vanadium oxide** (Ag1.6-2V4O10.8-11)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(improved **silver vanadium oxide** cathode material for high discharge rate **lithium batteries**)
RN 364605-96-9 HCAPLUS
CN Silver vanadium oxide (Ag1.82V4O10.91) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	10.91	17778-80-2
V	4	7440-62-2
Ag	1.82	7440-22-4

RN 364621-24-9 HCAPLUS
CN Silver vanadium oxide (Ag1.6-2V4O10.8-11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	10.8 - 11	17778-80-2
V	4	7440-62-2
Ag	1.6 - 2	7440-22-4

IT **1314-34-7, vanadium oxide v2o3**
1314-62-1, Vanadium pentoxide, reactions
12037-42-2, vanadium oxide v6o13
12137-49-4, vanadium oxide v3o7
12503-96-7, vanadium oxide v4o9
13497-94-4, silver vanadium oxide agvo3
RL: RCT (Reactant); RACT (Reactant or reagent)
(improved **silver vanadium oxide** cathode material for high discharge rate **lithium batteries**)
RN 1314-34-7 HCAPLUS
CN Vanadium oxide (V2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

RN 12137-49-4 HCAPLUS
CN Vanadium oxide (V3O7) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	7	17778-80-2
V	3	7440-62-2

RN 12503-96-7 HCAPLUS
CN Vanadium oxide (V4O9) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
V	4	7440-62-2

RN 13497-94-4 HCAPLUS
CN Silver vanadium oxide (AgVO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
V	1	7440-62-2
Ag	1	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Takeuchi, E	1995			US 5389472 A	HCAPLUS
Takeuchi, E	1996			US 5545497 A	HCAPLUS
Takeuchi, E	1997			US 5695892 A	HCAPLUS

L89 ANSWER 20 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:747277 HCAPLUS
DN 135:291387
TI Application of γ- **silver vanadium oxide** and mixture of γ- **silver vanadium oxide** /ε- **silver vanadium oxide** in high rate electrochemical **lithium batteries** containing **silver vanadium oxide**/CFx/**silver vanadium oxide** sandwich cathodes
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1143544	A2	20011010	EP 2001-303236	20010405 <--
	EP 1143544	A3	20021113		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001313028	A2	20011109	JP 2001-92912	20010328 <--
PRAI	US 2000-194840P	P	20000405 <--		

AB **Lithium** electrochem. cells having a sandwich cathode electrode of SVO/CFx/SVO active materials are described. Such a design improves the service life of **defibrillator** electrochem. cells. A preferred

formulation uses γ-SVO/CFx/γ-SVO or (γ & ε)-SVO/CFx/(γ & ε)-SVO sandwiched cathode electrodes.

IT **7439-93-2, Lithium**, uses **12026-36-7, Silver vanadium oxide** Ag2V4O11 **346712-58-1, Silver vanadium oxide** Ag0.8V2O5.4 **364605-96-9, Silver vanadium oxide** (Ag1.82V4O10.91) **364621-24-9, Silver vanadium oxide** (Ag1.6-2V4O10.8-11)
RL: DEV (Device component use); USES (Uses)
(application of γ- **silver vanadium oxide** and mixture of γ- **silver vanadium oxide**/ε- **silver vanadium oxide** in high rate electrochem. **lithium batteries** containing **silver vanadium oxide**/CFx/**silver vanadium oxide** sandwich cathodes)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 346712-58-1 HCAPLUS
CN Silver vanadium oxide (Ag0.8V2O5.4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.4	17778-80-2
V	2	7440-62-2
Ag	0.8	7440-22-4

RN 364605-96-9 HCAPLUS
CN Silver vanadium oxide (Ag1.82V4O10.91) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	10.91	17778-80-2
V	4	7440-62-2
Ag	1.82	7440-22-4

RN 364621-24-9 HCAPLUS
CN Silver vanadium oxide (Ag1.6-2V4O10.8-11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	10.8 - 11	17778-80-2
V	4	7440-62-2
Ag	1.6 - 2	7440-22-4

L89 ANSWER 21 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:615636 HCAPLUS
DN 135:168872
TI Electrochemical **battery** for conversion of low rate energy into high rate energy by parallel discharging
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1126539	A2	20010822	EP 2001-301379	20010216 <--
	EP 1126539	A3	20020918		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2001033953	A1	20011025	US 2001-781830	20010212 <--
	US 6627337	B2	20030930		
	JP 2001273912	A2	20011005	JP 2001-40660	20010216 <--
PRAI	US 2000-183010P	P	20000216 <--		

AB An electrode configuration for use in a **defibrillator battery** to improve the **battery capacity** and its utilization efficiency by using a combination SVO cell and a CFx cell discharged in parallel, is disclosed. In other words, the anode of the SVO cell is connected to the anode of the CFx cell and the cathode of the SVO cell is connected to the cathode of the CFx cell. The SVO cell provides a relatively high discharge rate while the CFx cell results in long service life. This results in 100% of the usable **capacity** from both cells being utilized.

IT **1314-62-1, Vanadium pentoxide,** uses
7439-93-2, Lithium, uses **11105-02-5,**
Silver vanadium oxide
RL: DEV (Device component use); USES (Uses)
(electrochem. **battery** for conversion of low rate energy into high rate energy by parallel discharging)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2

V		x	7440-62-2
Ag		x	7440-22-4

L89 ANSWER 22 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:537410 HCAPLUS
DN 135:109730
TI Alkali metal electrochemical cell activated with a nonaqueous electrolyte having a sulfate additive
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S., 13 pp., Cont.-in-part of U.S. 6,180,283.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6265106	B1	20010724	US 2000-491355	20000126 <--
	US 6013394	A	20000111	US 1998-9557	19980120 <--
	US 6180283	B1	20010130	US 1999-460035	19991213 <--
	US 6350546	B1	20020226	US 2000-519534	20000306 <--
	CA 2316438	AA	20010613	CA 2000-2316438	20000818 <--
	EP 1109244	A2	20010620	EP 2000-311118	20001213 <--
	EP 1109244	A3	20020724		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001176548	A2	20010629	JP 2000-378551	20001213 <--
	TW 478201	B	20020301	TW 2000-89126603	20001213 <--
PRAI	US 1998-9557	A2	19980120 <--		
	US 1999-460035	A2	19991213 <--		
	US 2000-491355	A2	20000126 <--		
	US 2000-519534	A	20000306 <--		

AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and a sulfate additive.
IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2

V	x	7440-62-2	
Ag	x	7440-22-4	

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1997			JP 09245833	HCAPLUS
Blomgren	1984			US 4444855	HCAPLUS
Clark	1984			US 4489144	HCAPLUS
Connelly	1984			US 4482616	HCAPLUS
Connelly	1986			US 4612265	HCAPLUS
Daifuku	1990			US 4957833	HCAPLUS
Maricle	1971			US 3567515	
Takeuchi	1995			US 5472810	HCAPLUS
Tinker	1985			US 4520084	HCAPLUS
Toyosawa	1990			US 4906538	HCAPLUS

L89 ANSWER 23 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:489871 HCAPLUS
DN 135:79494
TI Alkali metal **battery** activated with a nonaqueous electrolyte having a sulfate additive
IN Gan, Hong; Takeuchi, Esther S.
PA USA
SO U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of U.S. 6,180,283.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001006751	A1	20010705	US 2001-772680	20010130 <--
	US 6444360	B2	20020903		
	US 6013394	A	20000111	US 1998-9557	19980120 <--
	US 6180283	B1	20010130	US 1999-460035	19991213 <--
PRAI	US 1998-9557	A2	19980120 <--		
	US 1999-460035	A2	19991213 <--		

OS MARPAT 135:79494
AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, 1,2-dimethoxyethane and a sulfate additive having at least one unsatd. hydrocarbon containing a C(sp or sp2)-C(sp3) bond unit having the C(sp3) carbon directly connected to the -OSO3- functional group.
IT **7439-93-2**, **Lithium**, uses **11105-02-5**, **Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(alkali metal **battery** activated with nonaq. electrolyte having sulfate additive)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 24 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:360318 HCAPLUS
DN 134:355474
TI **Battery** electrodes including particles of specific sizes
IN Buckley, James P.; **Ghantous, Dania I.**; Hoang, Khanh; Horne, Craig R.; Bi, Xiangxin
PA **Nanogram Corporation, USA**
SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 30

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001035473	A1	20010517	WO 2000-US30543	20001106 <--
	W: CN, IN, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	EP 1249047	A1	20021016	EP 2000-979141	20001106 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2003514353	T2	20030415	JP 2001-537112	20001106 <--
	TW 488100	B	20020521	TW 2000-89123615	20001108 <--
	CN 1531480	A	20040922	CN 2001-820305	20011026 <--
PRAI	US 1999-435748	A	19991108 <--		
	US 2000-243491P	P	20001026 <--		
	WO 2000-US30543	W	20001106 <--		

AB Embodiments of electrodes include a collection of particles having an average diameter less than about 100 nm and have a root mean square surface roughness less than about one micron. Electrodes can be formed with a collection of electroactive nanoparticles having a narrow particle size distribution. Electrodes can be formed having an average thickness less than about 10 μm that include particles having an average diameter less than about 100 nm. Thin electrodes can be used in the formation of thin **batteries** in which at least one of the electrodes includes nanoscale electroactive particles.
IT **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(**battery** electrodes including particles of specific sizes)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

IT **7439-93-2, Lithium**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**battery** electrodes including particles of specific sizes)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **7439-93-2D, Lithium**, intercalation compound, uses
RL: DEV (Device component use); USES (Uses)
(particles; **battery** electrodes including particles of specific sizes)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bi	1999			US 5952125 A	HCAPLUS
Fetcenko	1996			US 5536591 A	HCAPLUS
Izumi	1999			US 5962156 A	HCAPLUS
Kawakami	1997			US 5641591 A	HCAPLUS
Yamada	1996			US 5482797 A	HCAPLUS

L89 ANSWER 25 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:909087 HCAPLUS
DN 134:59122
TI Electrochemical cell having multiplate and jellyroll electrodes with differing discharge rate regions
IN Spillman, David M.; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S., 9 pp., Cont.-in-part of U.S. 5,935,728.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6165638	A	20001226	US 1999-295090	19990420 <--
	US 5935728	A	19990810	US 1997-832909	19970404 <--
	AU 9860615	A1	19981008	AU 1998-60615	19980402 <--
	AU 728179	B2	20010104		
	EP 872908	A1	19981021	EP 1998-302625	19980403 <--
	EP 872908	B1	20011004		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI	US 1997-832909	A2	19970404 <--		

AB An electrochem. cell comprising a medium rate electrode region is intended to be discharged under a substantially constant drain and a high rate electrode region disposed in a jellyroll wound configuration intended to be pulse discharged. Both electrode regions share a common anode and are

activated with the same electrolyte.

IT **7439-93-2, Lithium**, uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(electrochem. cell having multiplate and jellyroll electrodes with differing discharge rate regions as **defibrillator** cells)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1926			GB 254852	
Beatty	1976			US 3982966	HCAPLUS
Beldock	1992			US 5169732	
Beldock	1993			US 5183712	HCAPLUS
Benirie	1977			US 4031899	
Crespi	1995			US 5458997	HCAPLUS
Goebel	1984			US 4447504	HCAPLUS
Hite	1912			US 1024577	HCAPLUS
Keister	1989			US 4830940	HCAPLUS
Lundsgnard	1989			US 4879190	HCAPLUS
Nagaura	1996			US 5534369	HCAPLUS
Rao	1975			US 3861397	HCAPLUS
Spillman	1999			US 5935724	HCAPLUS
Spillman	1999			US 5935728	HCAPLUS
Szasz	1992			US 5164273	HCAPLUS
Takeuchi	1995			US 5435874	HCAPLUS
Takeuchi	1997			US 5614331	HCAPLUS

L89 ANSWER 26 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:721142 HCAPLUS
DN 133:352561
TI A **vanadium**-based cathode for **lithium**-ion **batteries**
AU Chaloner-Gill, Benjamin; Shackle, Dale R.; Andersen, Terrell N.
CS **Nanogram Corporation, Fremont, CA, 94538-6529, USA**
SO Journal of the Electrochemical Society (**2000**), 147(10), 3575-3578
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
AB A **vanadium**-based **oxide** system has been developed as a cathode for use in a **lithium**-ion **battery**. The

lithiated material was made in two steps, i.e., 1, making a **Li** -V-O and, 2, introducing **lithium** into the intercalation host by reducing the V(V) with S2- ions in the form of **lithium** sulfide. The stoichiometry of the final product corresponds approx. to Li4V3O7.9. This material has shown excellent resistance to dissoln. in 1 M LiPF6 ethylene carbonate/dimethyl carbonate electrolyte. The capacity of the material cycling at a C/3 rate over the voltage range of 3.8-2.0 V is .apprx.220 mAh/g. Li4V3O7.9 has demonstrated some stability in an ambient environment. This new cathode is capable of storing large amts. of energy, 630 mWh/g. Li4V3O7.9 has exhibited long cycle life, greater than 100 deep discharge cycles vs. **lithium** metal.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abraham, K	1981	128	2493	J Electrochem Soc	HCAPLUS
Chaloner-Gill, B	1999			MRS Spring Meeting	
Dickens, P	1979	14	1295	Mater Res Bull	HCAPLUS
Koksbang, R	1995	14	125	Progress in Batterie	HCAPLUS
Linden, D	1995		14.5	Handbook of Batterie	
Linden, D	1995		36.10	Handbook of Batterie	
Mizushima, K	1980	15	783	Mater Res Bull	HCAPLUS
Murphy, D	1979	18	2800	Inorg Chem	HCAPLUS
Murphy, D	1979	126	497	J Electrochem Soc	HCAPLUS
Murphy, D	1981	128	2053	J Electrochem Soc	HCAPLUS
Ohzuku, T	1993	28	1159	Electrochim Acta	
Ohzuku, T	1994		264	Lithium Batteries: N	
Panero, S	1983	130	1225	J Electrochem Soc	HCAPLUS
Pistoia, G	1984	13	311	Solid State Ionics	HCAPLUS
Shiraishi, S	1999	146	1633	J Electrochem Soc	HCAPLUS
Tarascon, J	1993			US 5266299	HCAPLUS
Thackeray, M	1995	14	1	Progress in Batterie	HCAPLUS
Thackeray, M	1994		233	The Electrochemical	
Wadsley, A	1957	10	261	Acta Crystallogr	HCAPLUS
Whittingham, M	1976	123	315	J Electrochem Soc	HCAPLUS
Wickham, D	1965	27	1939	J Inorg Nucl Chem	HCAPLUS

L89 ANSWER 27 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:553811 HCAPLUS
DN 133:137867
TI Metal **vanadium oxide** particles for **batteries**
IN Horne, Craig R.; Reitz, Hariklia Dris; Buckley, James P.; Kumar, Sujeet; Fortunak, Yu K.; Bi, Xiangxin
PA **Nanogram Corporation, USA**
SO PCT Int. Appl., 114 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 30

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000046867	A1	20000810	WO 2000-US2653	20000202 <--
W: CN, JP, KR				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6225007	B1	20010501	US 1999-246076	19990205 <--
US 2001046468	A1	20011129	US 1999-311506	19990513 <--
US 6391494	B2	20020521		
EP 1163703	A1	20011219	EP 2000-905921	20000202 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, FI

	JP 2002536286	T2	20021029	JP 2000-597850	20000202 <--
	CN 1531480	A	20040922	CN 2001-820305	20011026 <--
PRAI	US 1999-246076	A	19990205 <--		
	US 1999-311506	A	19990513 <--		
	WO 2000-US2653	W	20000202 <--		
	US 2000-243491P	P	20001026 <--		

AB Metal **vanadium oxide** particles have been produced with an average diameter less than about 500 nm. The metal **vanadium oxide** particles have very uniform properties. In some embodiments, **silver vanadium oxide** particles are formed by the heat treatment of a mixture of nanoscale **vanadium oxide** and a **silver** compound Other metal **vanadium oxide** particles can be produced by similar processes. In other embodiments, laser pyrolysis is used to produce directly metal **vanadium oxide** composite nanoparticles. To perform the pyrolysis a reactant stream is formed including a **vanadium** precursor and a second metal precursor. The pyrolysis is driven by energy absorbed from a light beam. Metal **vanadium oxide** nanoparticles can be incorporated into a cathode of a **lithium** based **battery** to obtain increased energy **densities**. **Implantable defibrillators** can be constructed with **lithium** based **batteries** having increased energy **densities**.

IT **11105-02-5P, Silver vanadiumoxide**
12026-36-7P, Silver vanadiumoxide Ag2V4O11
220356-17-2P, Silver vanadiumoxide
Ag0.3-2V2O4.5-6
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(metal **vanadium oxide** particles for **batteries**)

RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 220356-17-2 HCAPLUS
CN Silver vanadium oxide (Ag0.3-2V2O4.5-6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4.5 - 6	17778-80-2
V	2	7440-62-2

Ag | 0.3 - 2 | 7440-22-4

IT **1314-34-7, Vanadium oxide v2o3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal **vanadium oxide** particles for **batteries**)
RN 1314-34-7 HCAPLUS
CN Vanadium oxide (V2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **1314-62-1P, Vanadium pentoxide**, preparation
12036-21-4P, Vanadium oxide vo2
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metal **vanadium oxide** particles for **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12036-21-4 HCAPLUS
CN Vanadium oxide (VO2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O═V═O

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Koksburg	1996			US 5549880 A	HCAPLUS
Singh	1998			US 5770126 A	HCAPLUS
Takeuchi	1996			US 5498494 A	HCAPLUS
Takeuchi	1996			US 5571640 A	HCAPLUS
Takeuchi	1996			US 5580683 A	HCAPLUS

L89 ANSWER 28 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:398848 HCAPLUS
DN 133:61282
TI Effects of the method of cathode synthesis on the internal resistance of **lithium/silver vanadium oxide batteries**
AU Chen, Kevin; Crespi, Ann M.; Schmidt, Craig L.; Skarstad, Paul M.
CS Medtronic, Inc., Minneapolis, MN, 55430, USA
SO Proceedings - Electrochemical Society (**2000**), 99-25, 401-407
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB **Silver vanadium oxide**(Ag2V4O11, SVO) is the active cathode material in **lithium** primary cells for powering **implantable** cardioverter **defibrillators**. The SVO material is synthesized either by a decomposition method at 380° or by a combination method at 500 °C. The resulting materials have drastically different morphologies. The rate capability and cell resistance of **lithium** cells with these SVO cathode materials have been characterized. The sources of cell resistance were studied with cells having a built-in **lithium** reference electrode at various depths of discharge. The transformation of DSVO into a CSVO-like material is

also discussed.
IT **12026-36-7, Silver vanadium oxide**
ag2v4o11
RL: DEV (Device component use); USES (Uses)
(effects of the method of cathode synthesis on the internal resistance of **lithium/silver vanadium oxide batteries**)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1982			US 4310609	HCAPLUS
Crespi, A	1993			US 5221453	HCAPLUS
Crespi, A				Patents Pending	
Howard, W	1995			US 5439760	HCAPLUS
Liang, C	1983			US 4391729	HCAPLUS
Takeuchi, E	1986		268	Proc 32nd Power Sour	HCAPLUS
Zandbergen, H	1994	110	167	J Solid State Chem	HCAPLUS

L89 ANSWER 29 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:65309 HCAPLUS
DN 132:95805
TI Electrolyte for **batteries** having cathodes containing **silver vanadium oxide**
IN Crespi, Ann M.; Chen, Kevin
PA Medtronic, Inc., USA
SO U.S., 11 pp., Cont.-in-part of U.S. 5,766,797.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6017656	A	20000125	US 1997-943637	19971003 <--
	US 5766797	A	19980616	US 1996-757220	19961127 <--
PRAI	US 1996-757220	A2	19961127 <--		

AB An electrochem. cell containing a cathode comprising **silver vanadium oxide** and an anode comprising **lithium** is disclosed that includes an improved electrolyte composition having the solvents propylene carbonate and 1,2-dimethoxyethane, and an addnl. third solvent that reduces the solubility of the composition of the **silver vanadium** cathode material. Preferably, the third solvent is a dialkyl carbonate such as di-Me carbonate, di-Et carbonate or ethylmethyl carbonate. The improved electrolyte composition reduces the build up of resistance in the cell during cell discharge, and may affect the cell's performance in **implantable** cardiac **defibrillator** applications. The cell of the present invention may include a hybrid cathode containing a mixture of **silver vanadium oxide** and carbon monofluoride.
IT **11105-02-5, Silver vanadium oxide**

RL: DEV (Device component use); USES (Uses)
(electrolyte for **batteries** having cathodes containing **silver vanadium oxide**)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1995			EP 0662729	HCAPLUS
Crespi	1998			US 5766797	HCAPLUS
Davidson	1994			US 5370949	HCAPLUS
Dey	1975			US 3877988	HCAPLUS
Dey	1975			US 3904432	HCAPLUS
Dey	1976			US 3930885	HCAPLUS
Dey	1976			US 3945848	HCAPLUS
Dey	1977			US 4028138	HCAPLUS
Dey	1977			US 4053692	HCAPLUS
Dey	1977			US 4057679	
Dey	1978			US 4091188	
Dey	1979			US 4177329	HCAPLUS
Dey	1980			US 4238552	HCAPLUS
Dey	1983			US 31414	HCAPLUS
Dey	1983			US 4423124	HCAPLUS
Ebel	1992			US 5114811	HCAPLUS
Fauklner	1988			US 4752541	HCAPLUS
Fujimoto	1994			US 5358805	HCAPLUS
Gozdz	1994			US 5296318	HCAPLUS
Hovsepian	1975			US 3877983	HCAPLUS
Kamenski	1975			US 3873369	HCAPLUS
Kegelman	1978			US 4084045	
Kelsey	1980			US 4184017	HCAPLUS
Koch	1981			US 4252876	HCAPLUS
Koshiba	1989			US 4874680	HCAPLUS
Lauck	1977			US 4016338	HCAPLUS
Lauck	1979			US 4158722	HCAPLUS
Margalit	1976			US 3981748	HCAPLUS
Margalit	1978			US 4113929	HCAPLUS
Muffoletto	1998			US 5716422	HCAPLUS
Ohsawa	1992			US 5162178	HCAPLUS
Omaru	1994			US 5294498	HCAPLUS
Schlaikjer	1979			US 4139680	HCAPLUS
Schoolcraft	1984			US 4430399	HCAPLUS
Schoolcraft	1984			US 4470939	HCAPLUS
Simon	1994			US 5310553	HCAPLUS
Slane	1991			US 4983476	HCAPLUS
Sunderland	1998			US 5716729	HCAPLUS
Tahara	1995			US 5395711	HCAPLUS
Tahara	1995			US 5401599	HCAPLUS
Takami	1992			US 5079109	HCAPLUS
Taylor	1979			US 4168351	
Taylor	1985			US 4556613	

Tomiyama	1995		US 5378560	HCAPLUS
Von Sacken	1993		US 5180574	HCAPLUS
Weiss	1993		US 5180642	HCAPLUS
Wuttke	1975		US 3884723	HCAPLUS
Yokoyama	1995		US 5385794	HCAPLUS

L89 ANSWER 30 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:460327 HCAPLUS
DN 131:90259
TI Use of double cells to power an **implantable** medical device
IN Can, Hong; Takeuchi, S. Esther
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 930665	A2	19990721	EP 1998-309397	19981117 <--
	EP 930665	A3	20020821		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 11283679	A2	19991015	JP 1999-5076	19990112 <--
PRAI	US 1998-8469	A	19980116 <--		

AB A power source including two alkali metal/transition metal oxide cells discharged in parallel to power an **implantable** medical device is disclosed. The first cell powers the medical device in both a device monitoring mode, for example in a cardiac **defibrillator** for monitoring the heart beat, and a device actuation mode for charging capacitors requiring high rate elec. pulse discharging. At such time as the first cell is discharged to a predetd. voltage limit, the first cell is disconnected from pulse discharge duty and only used for the device monitoring function. At that time, the second cell is utilized for the high rate elec. pulse discharging function. When the first cell reaches 100% efficiency or a present voltage limit, the second cell then takes over both device monitoring and device actuation functions. In that manner, a greater average discharge efficiency is realized from the two cells than is capable of being delivered from a single cell of similar chemical

IT **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(cathodes; use of double cells to power **implantable** medical device)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 31 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:460326 HCAPLUS
DN 131:90258
TI Control of swelling in alkali metal **batteries**
IN Gan, Hong; Takeuchi, S. Esther
PA Wilson Greatbatch Ltd., USA

SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 930664	A2	19990721	EP 1998-308677	19981023 <--
	EP 930664	A3	20020814		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	AU 9894144	A1	19990722	AU 1998-94144	19981125 <--
	AU 743438	B2	20020124		
	JP 11265722	A2	19990928	JP 1998-377178	19981229 <--
PRAI	US 1998-2534	A	19980102 <--		

AB An alkali metal/solid cathode electrochem. cell, particularly a **Li** /Ag2V4O11 cell, having an anode-to-cathode **capacity** ratio of about 0.68 to about 0.96, is disclosed. This provides the cell with negligible, if any, cell swelling during discharge.
IT **7439-93-2, Lithium**, uses
RL: DEV (Device component use); USES (Uses)
(anode; control of swelling in alkali metal **batteries**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(control of swelling in alkali metal **batteries**)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 32 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:415833 HCAPLUS
DN 131:118354
TI **Silver** and copper doped **vanadium oxides** as **lithium** intercalation hosts
AU Coustier, Fabrice; Hill, Jason; Passerini, Stefano; Smyrl, William H.
CS Corrosion Research Center Department of Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN, 55455, USA
SO Proceedings - Electrochemical Society (**1999**), 98-16(Lithium Batteries), 350-355
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB **Silver** and copper doped **vanadium pentoxides** were synthesized through a simple process from a **V2O5** hydrogel precursor. The materials showed very high electrochem. performance with

specific **capacities** ranging from 300 **mAh/g** to 450 **mAh/g** corresponding to 2.2 to 4 **Li+** ions per mol of **V2O5**. The composite cathodes containing the doped materials showed high intercalation rate performance. In addition, copper-doped **V2O5** cathodes showed an excellent reversibility on cycling with no **capacity** fading after more than 450 cycles.

IT **127672-83-7, Silver vanadium oxide** Ag0.5V2O5 **131314-85-7, Silver vanadium oxide** Ag0.3V2O5 **198831-05-9, Silver vanadium oxide** Ag0.1V2O5
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**silver** and copper doped **vanadium oxides** as **lithium** intercalation hosts)

RN 127672-83-7 HCAPLUS
CN Silver vanadium oxide (Ag0.5V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.5	7440-22-4

RN 131314-85-7 HCAPLUS
CN Silver vanadium oxide (Ag0.3V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.3	7440-22-4

RN 198831-05-9 HCAPLUS
CN Silver vanadium oxide (Ag0.1V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.1	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Coustier, F	1997	97	13	Electrochemical Soci	
Coustier, F	1998	145	L73	Journal of the Elect	HCAPLUS
Coustier, F	1997	496		Material Research So	
Coustier, F	1997	100	247	Solid State Ionics	HCAPLUS
Di Pietro, B	1977	124	161	J Electroch Soc	HCAPLUS
Haereid, S	1996	204	228	J Non-Cryst Solids	HCAPLUS
Le, D	1995	142	L102	Journal of the Elect	HCAPLUS
Le, D	1996	143	2099	Journal of the Elect	HCAPLUS
Livage, J	1991	3	578	Chemistry of Materia	HCAPLUS
Passerini, S	1998			Electrochimica Acta,	
Passerini, S	1994	141	L80	J Electroch Soc	HCAPLUS
Takeuchi, E	1988	135	2691	J Electroch Soc	HCAPLUS

L89 ANSWER 33 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:623710 HCAPLUS
DN 129:218934
TI Preparation and characteristics of (NayAg1-y)2V4O11 for **lithium** secondary **battery** cathodes
AU Kawakita, Jin; Makino, Koji; Katayama, Yasushi; Miura, Takashi; Kishi, Tomiya
CS Faculty of Science and Technology, Department of Applied Chemistry, Keio University, Yokohama, 223-8522, Japan
SO Journal of Power Sources (**1998**), 75(2), 244-250
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier Science S.A.
DT Journal
LA English
AB Layered **vanadium oxides**, (NayAg1-y)2V4O11 (y=0.77-0.98) are prepared by substituting part of the **silver** ions in Ag2V4O11 with sodium ions using an ion-exchange reaction in molten nitrate salts. These oxides exhibit less **capacity** loss during repeated cycling than non-substituted oxide, Ag2V4O11. This is mainly because the structural change into an amorphous state upon lithiation is restricted by the pillar effect in which unextractable sodium ions connect adjacent layers during **lithium** insertion/extraction
IT **12026-36-7P, Silver vanadium oxide** Ag2V4O11
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and characteristics of (NayAg1-y)2V4O11 for **lithium** secondary **battery** cathodes)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bergman, G	1987	20	179	J Power Sources	HCAPLUS
Bergman, G	1989	26	365	J Power Sources	HCAPLUS
Crespi, A	1993	43/44	119	J Power Sources	
Crespi, A	1995	54	68	J Power Sources	HCAPLUS
Fleury, P	1969	6	819	Rev Chim Miner	HCAPLUS
Garcia-Alvarado, F	1994	73	247	Solid State Ionics	HCAPLUS
Kawakita, J	1998	70	28	J Power Sources	HCAPLUS
Kawakita, J	1997	99	71	Solid State Ionics	HCAPLUS
Kawakita, J	1998	107	145	Solid State Ionics	HCAPLUS
Leising, R	1994	6	489	Chem Mater	HCAPLUS
Leising, R	1994	33	5733	Inorg Chem	HCAPLUS
Ozerov, R	1959	4	1047	Zh Neorg Khim	HCAPLUS
Raveau, B	1967	4	729	Rev Chim Miner	HCAPLUS
Shanon, R	1976	A32	751	Acta Crystallogr	
Takeuchi, E	1988	135	2691	J Electrochem Soc	HCAPLUS
Takeuchi, E	1991	138	L44	J Electrochem Soc	HCAPLUS
Takeuchi, E	1987	21	13	J Power Sources	
Takeuchi, E	1995	54	115	J Power Sources	HCAPLUS

West, K	1995	54	334	J Power Sources	HCAPLUS
Zandbergen, H	1994	110	167	J Solid State Chem	HCAPLUS

L89 ANSWER 34 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:805577 HCAPLUS
DN 128:77660
TI Preparation of **silver vanadium oxide** using nitric acid with **oxide** starting materials for **battery** cathodes
IN Leising, Randolph A.; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S., 11 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 5695892	A	19971209	US 1996-700212	19960820 <--
PRAI US 1996-700212		19960820 <--		

AB A **battery**, e.g., a **lithium battery**, comprises an alkali metal anode and a cathode from a composite material prepared from a combination of **vanadium oxide** and a mixture of nitric acid and ≥1 of a **silver**-containing constituent (e.g., **Ag**, Ag2O) and a copper-containing constituent (e.g., CuO). The process minimizes the liberation of toxic NOx gas. The composite material has the general formula CuxAgyV2Oz where 0.01≤x≤1.0, 0.1≤y≤1.0 and 5.01≤z≤6.5 or AgxVzOy where 0.30≤x≤2.0 and 4.5≤y≤6.0. The cathode material, e.g., Cu0.5Ag0.5V2O5.75, is particularly useful for **batteries** for **implantable** medical devices. In examples, a **lithium battery** containing a cathode synthesized from **Ag** metal and HNO3 exhibited a discharge **capacity** comparable to the prior art cell containing **silver vanadium oxide** prepared by a decomposition reaction of **silver** nitrate and **vanadium oxide**
.

IT **7439-93-2, Lithium**, uses
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(anodes; **silver vanadium oxide** preparation using nitric acid with **oxides** for **battery** cathodes)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **12026-36-7P, Silver vanadium oxide**
AgV2O5.5
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cathode; **silver vanadium oxide** preparation using nitric acid with **oxides** for **battery** cathodes)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

IT **1314-62-1, Vanadium oxide,** reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**silver vanadium oxide** preparation using nitric acid with **oxides** for **battery** cathodes)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **11105-02-5P, Silver vanadium oxide**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(β/γ-phase, cathode; **silver vanadium oxide** preparation using nitric acid with **oxides** for **battery** cathodes)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 35 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:733259 HCAPLUS
DN 128:5691
TI Dip-coated **silver**-doped **V2O5** xerogels as host materials for **lithium** intercalation
AU Coustier, F.; Passerini, S.; Smyrl, W. H.
CS Corrosion Research Center, Department of Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN, 55455, USA
SO Solid State Ionics (**1997**), 100(3,4), 247-258
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier
DT Journal
LA English
AB **Vanadium pentoxide** xerogels have shown high electrochem. performance in terms of energy content. The high specific energy and high intercalation capability make the materials promising for thin film **lithium battery** and electrochromic device application. In order to enhance the rate capabilities of the host we increased the electronic conductivity by doping the **V2O5** xerogels with **silver**. Samples were prepared by mixing various amts. of **silver** powder with **V2O5** hydrogel. We are able to prepare **silver**-doped **vanadium pentoxide** dip-coated thin films with a molar ratio (**Ag**/V) ranging from 0.005 to 0.5 (AgyV2O5 with y=0.01, 0.1 and 1). With the successful doping, the electronic conductivity of **V2O5** was increased by 2 to 3 orders of magnitude. The insertion **capacity** of the material was maintained and up to 4 mol of **lithium** per mol of **silver** -doped **V2O5** (XRG) were found to be reversibly intercalated.
IT **12306-24-0, Silver vanadium oxide**
AgV2O5 **198831-03-7, Silver vanadium**

oxide (Ag0.01V2O5) **198831-05-9, Silver vanadium oxide** (Ag0.1V2O5)
RL: DEV (Device component use); USES (Uses)
(dip-coated **silver**-doped **V2O5** xerogels as host materials for **lithium** intercalation)

RN 12306-24-0 HCAPLUS
CN Silver vanadium oxide (AgV2O5) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	1	7440-22-4

RN 198831-03-7 HCAPLUS
CN Silver vanadium oxide (Ag0.01V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.01	7440-22-4

RN 198831-05-9 HCAPLUS
CN Silver vanadium oxide (Ag0.1V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.1	7440-22-4

IT **7439-93-2, Lithium**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(dip-coated **silver**-doped **V2O5** xerogels as host materials for **lithium** intercalation)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Aldebert, P	1981	16	669	Mater Res Bull	HCAPLUS
Bonino, F	1977	2	265	J Power Sources	
Bullot, J	1980	36	986	Appl Phys Lett	HCAPLUS
Bullot, J	1981	68	357	Phys Status Solidi A	HCAPLUS
Di Pietro, B	1977	124	161	J Electrochem Soc	HCAPLUS
Garcia-Alvarado, F	1994	73	247	Solid State Ionics	HCAPLUS
Gharbi, N	1982	21	2758	J Lefebvre, Inorg Ch	HCAPLUS
Khairy, M	1990		856	J Chem Soc Chem Comm	HCAPLUS
Killias, H	1966	20	5	Phys Lett	HCAPLUS
Le, D				Extended Abstract No	

Le, D	1995	142	L102	J Electrochem Soc	HCAPLUS
Le, D	1996	143	2099	J Electrochem Soc	HCAPLUS
Leising, R	1994	6	489	Chem Mater	HCAPLUS
Liang, C	1982			US 4310609	HCAPLUS
Liang, C	1983			US 4391729	HCAPLUS
Livage, J	1991	3	578	Chem Mater	HCAPLUS
Livage, J	1981	42	981	J Phys Colloq C4	
Mott, N	1968	1	1	J Non-Cryst Solids	HCAPLUS
Park, H	1995	142	1068	J Electrochem Soc	HCAPLUS
Passerini, S	1994	141	L80	J Electrochem Soc	HCAPLUS
Passerini, S	1996		306	Proceedings of the E	
Passerini, S	1995	39	167	Solar Energy Materia	HCAPLUS
Raveau, B	1967	4	729	Rev Chim Miner	HCAPLUS
Sanchez, C	1983	47	279	Phil Mag B	HCAPLUS
Szorenyi, T	1991	121	29	Thin Solid Films	
Takeuchi, E	1988	135	2691	J Electrochem Soc	HCAPLUS
Takeuchi, E	1987	21	133	J Power Sources	HCAPLUS
Tipton, A	1996	143	3473	J Electrochem Soc	HCAPLUS
van der Pauw, L	1958	13	1	Philips Res Rep	
Weppner, W	1977	124	1569	J Electrochem Soc	HCAPLUS

L89 ANSWER 36 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:113411 HCAPLUS
DN 124:150874
TI **Silver-vanadium oxide** cathode material for high energy-**density** nonaqueous **batteries**
IN Takeuchi, Esther S.; Leising, Randolph A.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 689256	A1	19951227	EP 1995-304355	19950621 <--
	EP 689256	B1	19980916		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, PT, SE				
	US 5545497	A	19960813	US 1994-263130	19940621 <--
	AU 9517780	A1	19960104	AU 1995-17780	19950501 <--
	AU 687999	B2	19980305		
	JP 08045510	A2	19960216	JP 1995-148966	19950615 <--
	JP 3599425	B2	20041208		
	AT 171309	E	19981015	AT 1995-304355	19950621 <--
	JP 2004288641	A2	20041014	JP 2004-140252	20040510 <--
PRAI	US 1994-263130	A	19940621 <--		
	JP 1995-148966	A3	19950615 <--		

AB The new cathode material is AgxV2Oy and can comprise a β-phase **Ag**-V oxide having x = 0.35 and y = 5.18 and/or a γ-phase **Ag**-V oxide having x = 0.74 and y = 5.37. This new cathode material exhibits decreased voltage delay during high-rate applications, such as when the cathode mixture is incorporated into a primary **Li battery** powering an **implantable** cardiac **defibrillator**.
IT **173478-95-0, Silver vanadium oxide** (Ag0.35V2O5.18) **173478-96-1, Silver vanadium oxide** (Ag0.74V2O5.37)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(cathode material for high energy-d. nonaq. **batteries**)
RN 173478-95-0 HCAPLUS

CN Silver vanadium oxide (Ag0.35V2O5.18) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.18	17778-80-2
V	2	7440-62-2
Ag	0.35	7440-22-4

RN 173478-96-1 HCAPLUS
CN Silver vanadium oxide (Ag0.74V2O5.37) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.37	17778-80-2
V	2	7440-62-2
Ag	0.74	7440-22-4

L89 ANSWER 37 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:931596 HCAPLUS
DN 123:345753
TI Rebalancing of **lithium/silver vanadium oxide** (**Li**/SVO) cells for cardiac **defibrillators**
IN Crespi, Ann M.; Skarstad, Paul M.
PA Medtronic, Inc., USA
SO U.S., 9 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5458997	A	19951017	US 1994-293354	19940819 <--
	EP 707351	A1	19960417	EP 1995-305378	19950801 <--
	EP 707351	B1	19980114		
	R: DE, FR, GB, IT, NL, SE				
	JP 08069805	A2	19960312	JP 1995-233210	19950821 <--
	JP 3326671	B2	20020924		
PRAI	US 1994-293354	A	19940819 <--		

AB The anode-limited **battery** has a **Li** anode and a **silver vanadium oxide** cathode. Enough **Li** and electrolyte are provided in the **battery** to allow it to discharge only to the start of the 2nd voltage plateau of its discharge curve.
IT **7439-93-2, Lithium,** uses **11105-02-5, Silver vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(rebalancing of **lithium/silver vanadium oxide** (**Li**/SVO) cells for cardiac **defibrillators**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 11105-02-5 HCAPLUS

CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 38 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:704714 HCAPLUS
DN 123:118409
TI Sol gel intercalation materials for **lithium batteries**
AU Pereira-Ramos, J. P.; Bach, S.; Farcy, J.; Baffier, N.
CS Lab. Electrochim., CNRS, Thiais, 94320, Fr.
SO Materials Research Society Symposium Proceedings (**1995**), 369(Solid State Ionics IV), 191-200
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB This paper emphasizes the interest of sol-gel synthesis in obtained high performance cathodic materials. New **vanadium oxides**, **vanadium** bronzes (MxV2O5) and manganese **oxides** (MnO2) are prepared via the sol-gel process using inorg. precursors in aqueous medium. Their electrochem. behavior (working potential, specific **capacity**, kinetics of **Li** transport, rechargeability, cycle life) is investigated and discussed in relation with their specific structural, chemical and phys. features. In particular, the results are compared to that achieved for the corresponding classical compds. prepared via a synthesis route involving solid state reactions or precipitation reactions.
IT **111116-98-4, Silver vanadium oxide** Ag0.4V2O5 **131314-85-7, Silver vanadium oxide** Ag0.3V2O5
RL: DEV (Device component use); USES (Uses)
(sol gel intercalation materials for **lithium batteries**)
RN 111116-98-4 HCAPLUS
CN Silver vanadium oxide (Ag0.4V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.4	7440-22-4

RN 131314-85-7 HCAPLUS
CN Silver vanadium oxide (Ag0.3V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.3	7440-22-4

L89 ANSWER 39 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:194482 HCAPLUS
DN 122:18774
TI **Lithium** intercalation in Ag2V4O11
AU Garcia-Alvarado, F.; Tarascon, J. M.
CS Departamento de Quimica Inorganica, Facultad de Ciencias Quimicas, Universidad Complutense, Madrid, 28040, Spain
SO Solid State Ionics (**1994**), 73(3,4), 247-54
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier
DT Journal
LA English
AB The electrochem. intercalation of **lithium** in Ag2V4O11 and Ag2V4O11-y was performed. 7 And 5.7 **lithium** ions can resp. be intercalated into these compds. through a multiphase intercalation process. Preliminary electrochem. evaluation of the performances of both vanadates as pos. electrode materials for room temperature rechargeable **lithium batteries** indicates that among the two compds., the oxygenated Ag2V4O11 phase, with a theor. specific **capacity** of 300 Ah/g of vanadate, is the most attractive.
IT **7439-93-2, Lithium**, properties
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(electrochem. intercalation by **silver vanadium oxide**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **12026-36-7, Silver vanadium oxide** (Ag2V4O11) **12026-36-7D, Silver vanadium oxide** (Ag2V4O11), oxygen-deficient **159645-11-1, Silver vanadium oxide** (Ag2V4O10.6)
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(electrochem. intercalation of **lithium** by)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 159645-11-1 HCAPLUS
CN Silver vanadium oxide (Ag2V4O10.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	10.6	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

IT **159645-12-2, Silver vanadium oxide** (Ag1.9V4O11) **159645-13-3, Silver vanadium oxide** (Ag1.6V4O11) **159645-14-4, Silver vanadium oxide** (Ag1.5V4O11) **159645-15-5, Silver vanadium oxide** (Ag1.3V4O11)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formation in reaction of Ag2V4O11 with nitryl tetrafluoroborate)
RN 159645-12-2 HCAPLUS
CN Silver vanadium oxide (Ag1.9V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	1.9	7440-22-4

RN 159645-13-3 HCAPLUS
CN Silver vanadium oxide (Ag1.6V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	1.6	7440-22-4

RN 159645-14-4 HCAPLUS
CN Silver vanadium oxide (Ag1.5V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	1.5	7440-22-4

RN 159645-15-5 HCAPLUS
CN Silver vanadium oxide (Ag1.3V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	1.3	7440-22-4

IT **1314-62-1, Vanadium oxide v2o5,** reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(thermal reaction of **silver** nitrate in air with)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L89 ANSWER 40 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:413832 HCAPLUS
DN 121:13832
TI New cathode materials for thermal **batteries**
AU Ritchie, A. G.
CS Def. Res. Agency, Farnborough/Hants, GU14 6TD, UK
SO Power Sources (**1993**), 14, 299-312
CODEN: POSOAN; ISSN: 0743-7137
DT Journal
LA English
AB High valency oxides and oxy-salts of V, Cr, and Mn were tested as potential cathode materials for thermal **batteries** to provide higher cell voltages than FeS2 or lithiated V oxide cathodes. Both solid and immobilized liquid cathodes were tested. To avoid oxidation of the existing molten halide electrolytes, a solid sulfate electrolyte was used. High open-circuit cell voltages were found though voltages on-load often fell steadily during discharge. Useful coulombic **capacities** were found for **V2O5** and MnO2 at high voltages, above the maximum for FeS2, which would allow thermal **batteries** to be designed with fewer cells, reducing their size and weight
IT **1314-62-1, Vanadium pentoxide**, uses
12037-42-2, Vanadium oxide (V6O13)
13497-94-4, Silver metavanadate **15124-04-6, Silver** orthovanadate
RL: USES (Uses)
(cathodes, evaluation of, for thermal **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

RN 13497-94-4 HCAPLUS
CN Silver vanadium oxide (AgVO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
V	1	7440-62-2
Ag	1	7440-22-4

RN 15124-04-6 HCAPLUS
CN Silver vanadium oxide (Ag3VO4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
V	1	7440-62-2
Ag	3	7440-22-4

L89 ANSWER 41 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:249213 HCAPLUS
DN 120:249213
TI Solid-State Synthesis and Characterization of **Silver Vanadium Oxide** for Use as a Cathode Material for **Lithium Batteries**
AU Leising, Randolph A.; Takeuchi, Esther Sans
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Chemistry of Materials (**1994**), 6(4), 489-95
CODEN: CMATEX; ISSN: 0897-4756
DT Journal
LA English
AB **Silver vanadium oxide** (SVO, AgV2O5.5) was synthesized for use as a cathode material in **lithium**/SVO **batteries**. The material was prepared in the solid-state thermal reaction of a **silver**-containing precursor and **vanadium pentoxide** at 500° under an air or argon atmospheric The **silver**-containing precursors examined in this study were **silver** nitrate, **silver** nitrite, **silver** vanadate, **silver** oxide, **silver** carbonate, and **silver** metal powder. SEM anal. of the SVO products indicated that the surface morphol. was similar for each of the samples, with the dimensions of the rodlike particles depending on the form of **silver** used in the reaction. In addition, the degree of crystallinity of the samples dependeds strongly on the type of **silver** used in the reaction, as evidenced by X-ray powder diffraction anal. All of the samples were analyzed by DSC, chemical anal., X-ray powder diffraction, resistivity measurements, and elec. discharge tests of **Li**/SVO test cells. The exptl. **capacities** and pulse power capabilities of the SVO samples prepared under an air atmospheric were all almost identical, while the samples synthesized under an inert atmospheric displayed a significant decrease in delivered **capacity** and pulse power capability.
IT **11105-02-5, Silver** vanadate
RL: USES (Uses)
(precursor, in solid-state synthesis of **silver vanadium oxide** for use as cathode material for **lithium batteries**)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

IT **12026-36-7, Silver vanadium oxide** (Ag2V4O11)
RL: PROC (Process)
(solid-state synthesis and characterization of, for use as cathode material for **lithium batteries**)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

L89 ANSWER 42 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1993:237610 HCAPLUS
DN 118:237610
TI Solid-state cathode materials for **lithium batteries**: effect of synthesis temperature on the physical and electrochemical properties of **silver vanadium oxide**
AU Leising, Randolph A.; Takeuchi, Esther Sans
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Chemistry of Materials (**1993**), 5(5), 738-42
CODEN: CMATEX; ISSN: 0897-4756
DT Journal
LA English
AB Solid-state thermal reaction of AgNO3 and **V2O5** was used to prepare AgV2O5.5 for use as cathode material in **Li batteries**. The surface morphol. of the product was dependent on reaction temperature as evidenced by SEM. The AgV2O5.5 synthesized at 320 and 375° had irregular particles, while material prepared at 450° had a needle shape. The AgV2O5.5 synthesized at 540° appeared to be a mixture of large crystalline plates and irregular particles. Samples were characterized by DSC, chemical anal., x-ray powder diffraction, resistivity measurements, and constant-resistance discharge of **Li**/AgV2O5.5 test cells. The **capacity** of low-temperature materials (320° and 375°) was similar to that of AgV2O5.5 prepared at 450°. A significant decrease in delivered **capacity** was noted in cathodes of AgV2O5.5 prepared at 540°.
IT **12026-36-7P, Silver vanadium oxide** (Ag2V4O11)
RL: PREP (Preparation)
(cathodes, preparation and characterization of, for **lithium batteries**)
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

IT **1314-62-1, Vanadium oxide (V2O5)**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with **silver** nitrate, **silver vanadium oxide** preparation by)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L89 ANSWER 43 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1992:87591 HCAPLUS
DN 116:87591
TI Low temperature performance of **lithium/silver vanadium oxide** cells

AU Takeuchi, E. S.; Tuhovak, D. R.; Post, C. J.
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Proceedings of the International Power Sources Symposium (**1990**), 34th, 355-8
CODEN: PIPSEG
DT Journal
LA English
AB **Li/Ag**-V oxide cells were modified to provide low temperature performance. Prismatic cells with 90 cm2 surface area and 3.0 A-h **capacity** were built and tested under a pulse scheme where 40% of theor. **capacity** was obtained at -40°. Spirally wound AA cells with 2.0 A-h **capacity** and 200 cm2 surface area were tested under constant load discharge. Rates of 0.3-1.8 A at -40 to +25° were investigated. The cells delivered 1.3 A-h under 1.8 A at room temperature and were able to deliver 0.45 A-h under 0.6 A at -40°. Self-discharge ests. as determined by microcalorimetry suggest a self-discharge rate <0.7%/yr. In addition, preliminary safety testing revealed no violent cell behavior under external short circuit or crush test.
IT **11105-02-5, Silver vanadium oxide**
RL: USES (Uses)
(cathode, for **lithium batteries**, low-temperature performance of)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 44 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1991:636325 HCAPLUS
DN 115:236325
TI High energy-**density** non-aqueous **lithium** **battery** for operation in wide temperature range
IN Ebel, Steven J.; Pyszczyk, Michael F.; Frysz, Christine A.; Zelinsky, Michael A.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 441589	A1	19910814	EP 1991-300927	19910205 <--
	EP 441589	B1	19960626		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	US 5114811	A	19920519	US 1990-475410	19900205 <--
	AT 139868	E	19960715	AT 1991-300927	19910205 <--
PRAI	US 1990-475410	A	19900205 <--		

AB The **battery** having anode of Group IA, IIA, or IIIA elements or their alloys such as **Li**-.ltorsim.50 weight% Al alloy has a nonaq. electrolyte of a high-boiling solvent and ≥1 **Li** salt, and a graphite fluoride or **Ag**-V oxide cathode. The cathode contains also a PTFE binder and has a current collector of a conductive graphite-coated Ti or a highly alloyed ferritic stainless steel such as

Superferrit. The solvent is selected from γ-butyrolactone, propylene carbonate, diglyme, etc.; and the salt is selected from LiBF4, LiAsF6, **Li** trifluoromethanesulfonate, LiPF6, LiClO4, and tetraalkylammonium perchlorate. The separator material is selected from Kaowool, glass fibers, and porous fluoropolymers. A **Li**-Al alloy/graphite fluoride **battery** with a LiBF4 in γ-butyrolactone electrolyte had an energy d. of .apprx.0.6 W-h/cm3 and it exhibited a consistent performance at .apprx.-20 to .apprx.180°.

IT **11105-02-5, Silver vanadium oxide**
RL: USES (Uses)
(cathodes, for high-performance organic-electrolyte **batteries**)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 45 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1989:426249 HCAPLUS
DN 111:26249
TI **Lithium** diffusion in **silver vanadium oxide**
AU Takeuchi, Esther S.; Thiebolt, William C., III
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Proceedings - Electrochemical Society (**1989**), 89-4(Proc. Symp. Mater. Processes Lithium Batteries, 1988), 72-80
CODEN: PESODO; ISSN: 0161-6374
DT Journal
LA English
AB **Li/Ag**-V oxide **batteries**, for **implantable** devices, were discharged by a scheme where .apprx.10% of the cell's **capacity** was removed under high rate pulsing and then the cell was allowed to stabilize. The magnitude and time for voltage recovery were not constant at all depths of discharge. The rate of **Li** diffusion in **Ag**-V oxide, which is responsible for the voltage recovery, was investigated by low scan rate voltammetry. The **Li** diffusion coefficient (D) measured by this technique was 1.3 + 10-9-5.5 + 10-10 cm2/s. A pulse technique was also used which allowed the measurement of **Li** diffusion at specific depths of discharge. This method showed that the **Li** D values decreased when 0.75-1.0 equiv of **Li** had been discharged by the **Ag** -V oxide. This is consistent with the intermittent pulse testing results of **batteries** where the time for voltage recovery was 0.75-1.0 equiv **Li**.

IT **7439-93-2, Lithium**, properties
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(diffusion of, in **silver vanadium oxide**, **battery** state of charge determination by voltage recovery monitoring in relation to, for **implantable** medical devices)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **11105-02-5, Silver vanadium oxide**
RL: USES (Uses)
(**lithium** diffusion in, **battery** state of charge determination by voltage recovery monitoring in relation to, for **implantable** medical devices)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 46 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1988:78626 HCAPLUS
DN 108:78626
TI **Lithium/silver vanadium oxide batteries** with various **silver** to **vanadium** ratios
AU Takeuchi, Esther Sans; Piliero, Pamela
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Journal of Power Sources (**1987**), 21(2), 133-41
CODEN: JPSODZ; ISSN: 0378-7753
DT Journal
LA English
AB In the discharge of **Li**-AgxV2Oy (x = 0.021-2.0, y = 5.25-6.0) **batteries** under constant resistance loads of 1, 2, and 5 kΩ, the cells with a AgV2O5.5 cathode delivered the highest **capacities** and had the least voltage drop under applied constant current pulses. The theor. energy d. of the 3 **Li**-AgV2O5.5 couple is 1.5 W-h/g. The oxides were prepared by heat treatment of AgNO3 and **V2O5** and analyzed by atomic absorption spectroscopy and x-ray powder diffraction. The reaction of AgV oxide with BuLi indicated that the material with a composition of AgV2O5.5 had the highest volumetric **capacity**.
IT **111520-17-3 111520-18-4 111520-19-5 111520-20-8 111520-21-9 111520-22-0**
RL: USES (Uses)
(cathodes, composition and structure of, **lithium battery** performance in relation to)
RN 111520-17-3 HCAPLUS
CN Silver vanadium oxide (Ag0.02V2O5.25) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.25	17778-80-2
V	2	7440-62-2
Ag	0.02	7440-22-4

RN 111520-18-4 HCAPLUS
CN Silver vanadium oxide (Ag0.29V2O5.08) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	5.08	17778-80-2
V	2	7440-62-2
Ag	0.29	7440-22-4

RN 111520-19-5 HCAPLUS
CN Silver vanadium oxide (Ag0.76V2O5.49) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.49	17778-80-2
V	2	7440-62-2
Ag	0.76	7440-22-4

RN 111520-20-8 HCAPLUS
CN Silver vanadium oxide (Ag0.83V2O5.33) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.33	17778-80-2
V	2	7440-62-2
Ag	0.83	7440-22-4

RN 111520-21-9 HCAPLUS
CN Silver vanadium oxide (Ag1.06V2O5.31) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.31	17778-80-2
V	2	7440-62-2
Ag	1.06	7440-22-4

RN 111520-22-0 HCAPLUS
CN Silver vanadium oxide (Ag1.19V2O5.57) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5.57	17778-80-2
V	2	7440-62-2
Ag	1.19	7440-22-4

IT **1314-62-1**, uses and miscellaneous **12026-36-7, Silver vanadium oxide** ($Ag_2V_4O_{11}$) **13497-94-4, Silver vanadium oxide** ($AgVO_3$) **111520-23-1**
RL: USES (Uses)
(phase, in **silver vanadium oxide** for **battery** cathodes)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12026-36-7 HCAPLUS
CN Silver vanadium oxide (Ag2V4O11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
V	4	7440-62-2
Ag	2	7440-22-4

RN 13497-94-4 HCAPLUS
CN Silver vanadium oxide (AgVO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
V	1	7440-62-2
Ag	1	7440-22-4

RN 111520-23-1 HCAPLUS
CN Silver vanadium oxide (Ag0.35V2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	2	7440-62-2
Ag	0.35	7440-22-4

L89 ANSWER 47 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1987:639782 HCAPLUS
DN 107:239782
TI Nonaqueous **lithium battery**
IN Keister, Pamela P.; Mead, Ralph T.; Muffoletto, Barry C.; Takeuchi, Esther S.; Ebel, Steven J.; Zelinsky, Michael A.; Greenwood, John M.
PA Greatbatch Enterprises, Inc., USA
SO Eur. Pat. Appl., 44 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 237146	A1	19870916	EP 1987-300305	19870114 <--
	EP 237146	B1	19911009		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	US 4830940	A	19890516	US 1986-818879	19860114 <--
	CA 1285611	A1	19910702	CA 1986-526555	19861230 <--
	AU 8767532	A1	19870716	AU 1987-67532	19870113 <--
	AU 607409	B2	19910307		
	AT 68292	E	19911015	AT 1987-300305	19870114 <--
	US 4964877	A	19901023	US 1989-323281	19890314 <--
PRAI	US 1986-818879	A	19860114 <--		
	EP 1987-300305	A	19870114 <--		

AB The **battery** for delivering high-current pulses comprises a casing, an Ag0.5-2V2O4.5-6 cathode structure of a plurality of plates, an alkali metal anode of a plurality of sections interposed between the cathode plates, and a nonaq. electrolyte.
IT **149852-70-0**
RL: USES (Uses)
(cathodes, for nonaq.-electrolyte **batteries**, for cardiac

defibrillator)
RN 149852-70-0 HCAPLUS
CN Silver vanadium oxide (Ag0.5-2V2O4.5-6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4.5 - 6	17778-80-2
V	2	7440-62-2
Ag	0.5 - 2	7440-22-4

L89 ANSWER 48 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1987:461954 HCAPLUS
DN 107:61954
TI High rate capability of **lithium/silver vanadium oxide** cells
AU Takeuchi, E. S.; Zelinsky, M. A.; Keister, P.
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Proceedings of the International Power Sources Symposium (**1986**), 32nd, 268-73
CODEN: PIPSEG
DT Journal
LA English
AB A **Li**-nonaq. electrolyte/**Ag** V oxide **battery** for high-rate discharge delivers 50% of the theor. **capacity** to 2.0 V under constant resistance discharge of 4 mA/cm2 and constant current discharge of 5 mA/cm2. Voltage delay under pulse recovers within 2-4 s after application of a pulse and does not drop below 2.0 V. The **battery** is suitable for cardioverter/**defibrillator** applications.
IT **11105-02-5P**, **Silver vanadium oxide**
RL: PREP (Preparation)
(cathodes, manufacture and **capacity** of, for high-rate **lithium batteries**, for medical uses)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 49 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1986:629862 HCAPLUS
DN 105:229862
TI High-rate **lithium** solid cathode **battery** for **implantable** medical devices
AU Holmes, Curtis F.; Keister, Pamela Piliero; Takeuchi, Esther Sans
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Progress in Batteries & Solar Cells (**1987**), 6, 64-6
CODEN: PBASDR; ISSN: 0198-7259
DT Journal
LA English
AB A sealed **Li**/AgV oxide **battery** can deliver high current pulses and constant background current required of a power source for an **implanted defibrillator**. The electrolyte contains a

Li salt in a 1:1 mixture of propylene carbonate and dimethoxyethane. A polypropylene separator is used between the large area electrodes. The **batteries** have a self discharge rate of 2.4%/yr and are stable and safe for the application intended.

IT **11105-02-5**
RL: USES (Uses)
(cathodes, **battery**, with **lithium** anodes and organic electrolyte, for **implantable** devices)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

L89 ANSWER 50 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1986:487384 HCAPLUS
DN 105:87384
TI Performance and safety characteristics of a **lithium/silver vanadium pentoxide battery** for low to moderate rate applications
AU Keister, P.; Mead, R. T.; Ebel, S. J.; Fairchild, W. R.
CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA
SO Proceedings of the Power Sources Symposium (**1984**), 31st, 331-8
CODEN: PSSYAD; ISSN: 0079-4457
DT Journal
LA English
AB A L/AgV2O5 (AgV2O5.5-6.0) prismatic cell 45 x 23 x 8.6 mm in size - a size and shape compatible with many **implantable** devices - was designed, constructed and tested for performance and safety. The AgV2O5, the cathode active material, was prepared by known methods, the **V2O5** being obtained by thermal decomposition of NH4VO3. The cell was designed to be cathode limited and the **capacity** of the AgV2O5 is 0.29 A-h/g. Typical discharge curves for **Li**/AgV2O5 are given along with a pulsed load capability profile and a graph of **Li**/AgV2O5 **capacity** (to 2.0 V) vs. **c.d.**

IT **11105-02-5 12306-24-0**
RL: PRP (Properties)
(**batteries**, with **lithium** for **implants**)
RN 11105-02-5 HCAPLUS
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 12306-24-0 HCAPLUS
CN Silver vanadium oxide (AgV2O5) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2

V	2	7440-62-2
Ag	1	7440-22-4

IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(**batteries**, with **silver vanadium oxide**, for **implants**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

L89 ANSWER 51 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1982:132006 HCAPLUS
DN 96:132006
TI New high rate **lithium/vanadium pentoxide** cell for **implantable** medical devices
AU Horning, Robert J.; Rhoback, Frank W.
CS Power Sources Cent., Honeywell Inc., Horsham, PA, 19044, USA
SO Progress in Batteries & Solar Cells (**1982**), 4, 97-102
CODEN: PBASDR; ISSN: 0198-7259
DT Journal
LA English
AB Characteristics and construction details are given on the **Li/V2O5 battery**, ideally suited for **implantable** devices such as an insulin pump, a cardiac pacemaker, or an automatic **defibrillator**. Output of these **batteries** is of high cathodic efficiency even under high c.ds. Little or no loss resulted from shock and vibration tests, and the actual delivered A-h showed consistent and reproducible values with the discharge profiles typical of a **V2O5** electrochem. system.
IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(anodes, in **battery** with **vanadium oxide**, for **implantable** medical devices)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **1314-62-1**, uses and miscellaneous
RL: USES (Uses)
(cathodes, in **lithium battery** for **implantable** medical devices)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L89 ANSWER 52 OF 52 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1981:38502 HCAPLUS
DN 94:38502
TI Study on cathode materials for organic electrolyte **lithium** cell
AU Terasaki, Masanao; Kashihara, Shin; Takeshima, Genji
CS Nippon Denchi K. K., Japan

SO GS News Technical Report (**1980**), 39(1), 22-7
CODEN: GSNTAA; ISSN: 0385-7204
DT Journal
LA Japanese
AB Some metal-oxides and **Ag** oxysalts were studied as the cathode of button-type organic electrolyte **Li** cells. Metal oxides tested were PbO2, WO3, SeO2, **V2O5**, MnO2, MoO3, Fe2O3, Fe3O4, FeO, SnO, SnO2, CuO, CoO, Co2O3, and Bi2O3. The **Ag** oxysalts tested were Ag2CO3, AgNO3, Ag3PO4, Ag4P2O7, Ag2SO4, AgVO3, Ag2CrO4, Ag2MoO4, and AgIO3. MnO2, MoO3, and **V2O5** show a high discharge voltage, and Bi2O3, CuO, and PbO2 show a high drain **capacity** in spite of the low-discharge voltage. These oxides seem to be very attractive for high energy d. **Li** cells. On the other hand, **Ag** oxysalts show a high discharge voltage and high energy d. However, the **Li** cells with **Ag** oxysalts need suitable barrier separators to obtain the long shelf-life, because most of them are soluble in the organic electrolyte.
IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(anode, in **battery** with metal oxides and **silver** oxysalts with organic electrolyte)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **1314-62-1**, uses and miscellaneous **15124-04-6**
RL: PRP (Properties)
(cathodes, for **lithium** organic electrolyte **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 15124-04-6 HCAPLUS
CN Silver vanadium oxide (Ag3VO4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
V	1	7440-62-2
Ag	3	7440-22-4

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